The Builder.

No. CCCXIV.

SATURDAY, FEBRUARY 10, 1849.

THE Superintending Inspectors appointed by the Board of Health are actively proceeding in their inquiries, shifting from town to town, receiving evidence, and making general examinations of the locality. We have before us a pile of the evidence offered in different quarters, several communications on the subject, and not a few requests that we should let the London public know what is going on in this respect. The number and extent of the inquiries (though in some cases, we may say in parenthesis, not by any means extensive enough, being conducted on what may be called the "touch and go" system), would prevent us from doing so at any length, even if we were certain that the majority of our readers would be pleased by such a course. We will refer, however, to some of the principal points elicited during two or three of the more recent inquiries.

The bad condition of *Lancaster* in respect of health has been known for some time. Professor Owen, in his startling report on this place, published in the "Second Report of the Commissioners for inquiring into the state of large towns,"* put a mark upon it, which rendered any further proof that remedies are required there unnecessary. Mr. Smith, of Deanston, was the inspector appointed to attend there, and he opened the inquiry at the end of last month. The present mayor of Lancaster is Mr. Edmund Sharpe, architect, who is known to many of our readers by his published works, especially by his fine book, "Architectural Parallels," on the merits of which we spoke at some length not very long ago, and this gentleman went very fully into the subject, and gave a large amount of evidence, not merely in his capacity of mayor, but as representative of a local committee of health.

Hear, however, first, what Mr. Grant, the superintendant registrar of the district, said, as to the rate of mortality there. Omitting the lunatic asylum and workhouse, so far as concerns paupers not belonging to Lancaster, he makes the deaths 28·98 per annum in every thousand, or one in every 37. "The deaths in the rural parts of the district are about 17 per annum per thousand, showing an excess of deaths in Lancaster of 130 per annum." He found some time since that the average age at death in Lancaster was about *twenty-eight years*, while in the other part of the district it is about *thirty-five years*. As regards the infantile mortality of the working class, he found that about 15 per cent. of the deaths of that class are under six months old, about 44 under five years, and nearly 50 per cent. under ten years.

Mr. Sharpe drew the inspector's attention to Mr. Owen's report, already alluded to, and especially to a diagram in it, representing the stream of life in three columns, which it is impossible not to view, in connection with the state of things, without the deepest regret that so little has been done to improve the health of the town, and particularly the health of the poorer classes. This diagram, as the witness pointed out, represents the duration of life in three classes of the inhabitants of Lancaster respectively,—the gentry, the tradesmen, and the operatives,—and it appears from these returns that of every hundred that are born among the gentry, eighty-five live, on the average, to the age of ten years. In other words, it takes ten years to kill off fifteen individuals. How long does it take to kill off the same number among the working classes? According to the same return, only six months! Again, how many of the hundred survive to the age of thirty? Amongst the gentry, 72; amongst the operatives, 36, or one-half the former! Making due allowance for the many other causes that depress the state of health of the young of the poorer classes, it is impossible for us to close our eyes to the probability that the state of the atmosphere in which they live is one of the most important and fatal of those causes. This report was published in 1845, and two years and upwards passed over, continued the witness, without a remedial step of any kind having been taken to abate the shocking state of things so circumstantially described by him. He did not desire to impute blame, but nothing had been done, and eight weeks ago the town was in the same state that it was five years ago. One main point dwelt upon by the witness,—referring both to the sewers and wells of Lancaster, and which will scarcely be credited, even by those accustomed to hear of extraordinary things in matters of this nature,—was, that the whole of the substratum upon which the town of Lancaster stands is strongly impregnated with the sewage of the town. "This is a startling assertion, but the fact is as I say. It is the common practice of builders in Lancaster to carry down the cesspools from water-closets and privies until they reach the gravel; and having done so, to provide no overflow, the whole of the sewage being drained off by the gravel. It frequently happens, that persons opening their cesspools after the lapse of several years, and expecting to find them full, have found them, to their great surprise, entirely empty. The whole contents have gone into the gravelly substratum in which the wells of the whole town are situated. The water in Lancaster is believed by many to be good. There may be isolated instances of good water, under peculiar circumstances of protection to the well, but no analysis that has ever yet been made, gives other than most unsatisfactory results. What has been here said of cesspools applies equally to sewers, public and private, many of which are built with dry walling at the sides, and none of which are water-tight." He then handed in analyses of the water from various wells, made by proper parties, as the foundation of his assertions. Other witnesses corroborated the statement.

Mr. Johnson, a medical man of the town, said that much of what the mayor had stated was fallacious; but afterwards, when giving connected evidence, he said nothing but what was confirmatory of the general statements of the miserable condition of the town in a sanitary point of view.

Evidence was given of the positive occurrence of fever through the stoppage of drains, and of its cessation when the stoppage was removed; of the evils of the window-tax, and the mischief caused by damp paths and roads with a decomposing surface.

We do not find, however, that any material inquiry into the state of the burial-grounds took place,—a circumstance much to be regretted. It does seem most strange that, in spite of the overwhelming amount of evidence which exists proving the death-dealing character of over-crowded burial-grounds in towns, this most important matter is constantly shuffled out of sight by those in power. The victim cannot point to the spot and say, "Here I took the poison;" circumstantial evidence is disregarded, and deaths are looked upon as part of an inevitable course of events, which ought not to have occurred for years, and would not but, for our suicidal disregard of undeniable facts.

At *Whitehaven*, Mr. Rawlinson has been conducting the inquiry; and there Dr. Falcon gave evidence relative to the crowded state of St. Nicholas's, or the old church-yard. He had lived opposite it twenty years, and during that period his family, he said, had suffered greatly from sickness, which he principally attributed to the noxious air which emanated from the church-yard.

The great want complained of here and elsewhere, was an adequate supply of pure water. Mr. Clarke, surgeon, agreeing in this, said something might nevertheless be done by making drains and sewers. The importance of proper sewers might be shown by a case which had come within his own practice as a surgeon. He had been called to attend a case of dysentery, which had arisen from the imperfect state of a drain in George-street, which ran under the lobby of the house of his patient, and was covered only with thin boards. The effluvia arising from the sewer had made the whole of the inhabitants—four persons—exceedingly ill. Two of the cases terminated in death; and, subsequently, he had been called in to attend the other two with fever!

At *Leicester*, Mr. Ranger was the inspector engaged, and much anxiety seems to have been shewn on the part of the inhabitants to give information, and obtain a satisfactory result. The inspector referred, in his opening address, to the comparative average duration of life at Leicester and Billesdon at the last census, from which he said it appeared that the total average loss of life to every individual in Leicester, as compared with the inhabitants of Billesdon, was 12½ years; and taking the population into account, with the average of wages at 7*s.* per week, the total loss in labour had been to this town no less than 90,000*l.* since that time. It was shewn by witnesses that the houses in which the women were engaged in stocking-making were ill-ventilated—in some cases back to back without through air; that the cesspools were often dug down to the springs, to avoid necessity for cleansing out, by which means the water was poisoned; and that the drainage, even in the best parts of the town, was most defective.

As to the supply of water, which will be insisted on by the Central Board here and elsewhere, the inspector said he would at once state that it is intended, in the sanitary regulations to be made, to have a full and *constant* supply of water, and perfect drainage: there is to be no *intermission* of the supplies of water—it will be constantly laid on to each house, and the sewerage will not be allowed to remain in a quiescent state. Indeed, he thought there could be no effectual drainage without an unceasing supply of water; it would be folly to attempt it without. The proper supply of water is, therefore, a matter determined upon.

At *Leeds* the town council have absurdly determined, by a majority of one, to postpone the consideration of the sewerage of the town

* 8vo. edition, vol. ii., p. 71.

for *six months*. If it can be proved hereafter that death has occurred through want of efficient drainage, the council ought to be indicted for manslaughter.——At *Gateshead*, Mr. Dobson, architect, has been called in to advise as to the best mode of sewering the main thoroughfare.——And at *Lincoln*, Mr. Giles, engineer, is preparing plans, by direction of the corporation, for a system of underground sewers.*

A striking evidence of the effect of locality, and improved structural arrangements, on the health of the inhabitants of towns, has just appeared in the shape of a report from Hamburgh, by Mr. Grainger.† The fire of 1842 led to the re-arrangement of the greater part of the town, and under the direction of Mr. Lindley, engineer, the water supply, drainage, laying out of the streets, &c., have been carefully attended to. The result is said to be a diminution of disease to a considerable extent, and an exemption from cholera particularly, during the visitation of the present year, as remarkable as it is important.

The facts given in this report afford an additional confirmation of the great principle established by former researches—"that amidst the town populations the cholera visits with most severity the same class of persons and the same places, and is governed by similar circumstances, as typhus." "The firm establishment of this position is of infinite moment, inasmuch as by bringing cholera into the same category as low fever, no one accustomed to these inquiries would doubt that as certainly as the per-centage of typhus decreases with improved drainage, paving, and ventilation, so also will epidemic cholera. The proof of this has been afforded on a grand scale at Hamburgh. The ravages of the disease have received a marked check, in the present outbreak, by the *substitution of wide, open, and well-drained streets, for narrow, filthy, and damp thoroughfares;* by the removal of high mounds of earth, blocking up the streets and overshadowing the houses, and *by guarding a large evaporating surface of water from contamination.*"

The influence of these improvements will not cease with the present year, but will be perpetuated for ages to come; they will benefit not merely the existing race, but distant generations of inhabitants; and the immediate expense incurred in effecting them will be found to be a vast ultimate economy, even in money, irrespective of the result—which is beyond price—the gain in improved health and lengthened life.

The Serpentine and Kensington Gardens.—The commissioners of her Majesty's Woods, &c., are now draining the Serpentine, prior to the measures they are about to adopt to remedy the stagnant state of the water. Would not this be a good opportunity to remove the *dumb waiter* at the end of the ornamental water in Kensington Gardens, and substitute a fountain of some architectural pretensions? A very small outlay would effect this, and I am sure, even those who have the most extreme views of retrenchment, would not object to see something there that we should not be ashamed of (as we all are at present). The two floating islands also, for the ornamental water fowls, *alias* common ducks, if necessary, might likewise be improved.—O.H.

* Amongst the publications before us is a very comprehensive "Report to the Town Council of Chester, on the Sewerage and other Works under the Improvement Act," by Mr. Baylis, the borough surveyor.—Mr. Wichcord, Jun., architect, has just now published (Wickham, Maidstone; Longman, London), "Observations on the Sanitary Condition of Maidstone, with a view to the introduction of the Act for promoting the Public Health," which appears to be a sensible production.

† In the official circular (No. 4) issued by the Board of Health.

PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE.

The fourth lecture of the course, at the Royal Academy, delivered on Thursday, the 25th ult., to which the limits of our usual summary hardly allow us to do proper justice, was a very able exposition of what the professor described as the two cardinal principles in design, namely, first, precedent or authority, and second, invention exercised by means of new combinations, or sometimes new elements. With regard to the first, he said that it was the great duty of institutions like the academy to direct attention to the models of antiquity, and to indicate the authors who were to be consulted. It was its office to stand, in the full conservative spirit, in opposition to all depreciation of tried experience. In a proper understanding of these models depended the true value of precedent. The love of it must not, however, be allowed to hold entire possession of the architect, or it would easily degenerate into superstition. Two states of the mind, therefore, were necessary, the one retrospective, the other prospective, and we were to dispense with neither one nor the other: each had claims—each defects.

We might reflect that the intellectual man was compounded of knowledge, stored up in his early days. The appetite was suited to the age. The time came when he repented of every idle hour, and when he had to employ the knowledge he might possess. He would become deeply sensible of the value of information, and would be impressed with a wholesome reverence for precedent, but feeling these, he must guard against the danger of superstition and pedantry, which might tend to the dogmatic belief in no other model than the particular one he set up for himself, or no other master than the one from whom he gained his assumed precepts. Some in the love of novelty might depreciate former things; but it was hardly possible for an artist of sensibility to contemplate, without emotion, the monuments of former art, such as so powerfully impressed the mind of Brunelleschi in the grand monuments of ancient Rome. But we must guard against the misconception alluded to by the poet, who said,—

> "To observations which ourselves we make,
> We grow more partial for the observer's sake:"

We must enter into the considerations of structure in our buildings, and turn peculiar requirements into peculiar advantages. In so doing, we should find—

> "Spontaneous beauties all around advance,
> Start e'en from difficulty, strike from chance."

We must impress our works with a character peculiarly their own, and not afford the opportunity of a contrast, such as that between the truth and beauty of the portraits of the old masters, and the portraits of our grandfathers.

On the other hand, the professor continued, we had to deal with the innovators in art, and these were of two kinds. We had those who professed to have discovered some entirely new principle, or made some new invention, and who argued with a certain show of reason. Such theories might, or might not, be correct, but we were not able to get ourselves to understand and assent to them. The injustice to the authors of such theories could not be avoided, and they must be content, if able, to rank themselves with Socrates, and others who were before their age, and whose opinions sooner or later might prevail. Others there were who laboured to show the defects in the present practice of the art, and what ought to have been avoided in this work or the other. But these gave us nothing in the place of what they condemned,—no stable principles,—but confessed that they must be left to time to unfold. It must of course be recollected that there were two parties to all inventions, namely, those who originated, and those who received the invention, that was to say, the public. The elements of our art, indeed, were few, but were capable of a multitude of combinations. From the seven notes in music were produced a great number of beautiful melodies; from the twenty-six letters of the alphabet was compounded all that Shakspeare had written. In these cases how small in number were the elements, but, how to accomplish a similar number of beautiful combinations, there was "the rub."

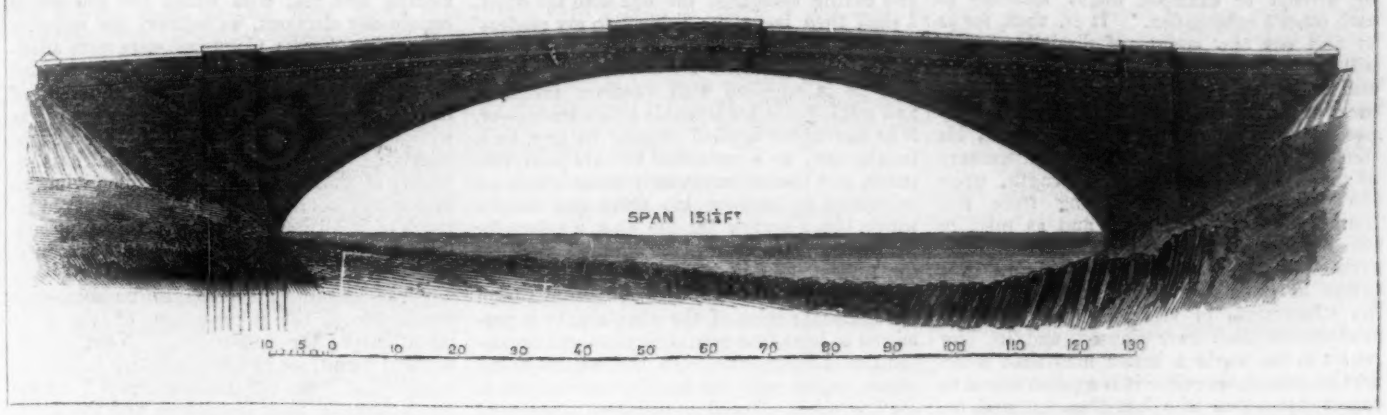
Away, then, said the professor, with those ideas of absolute novelty which presented themselves to some persons. Those who knocked down, must erect something instead. Our neighbours knocked down a monarchy, and they erected a republic.—He recommended the critical examination of buildings, as calculated to improve the mental qualifications for the practice of design, but impressed upon his hearers the propriety of accompanying criticism with moderation of temper. He suggested that they should strive to find out in what parts of a composition æsthetical character was attained, and where it was deficient, and whether the proportion was right or wrong, and why. Criticism, he urged, was one thing, and abuse or diatribe another; and he pointed out by which spirit we should most contribute to what was accordant with morality. He, the professor, had shewn that there was a theory of taste and beauty, as surely as there was a theory of beauty and geometry, in nature,—that nature was

> "At once the source, and end, and test of art,"—

and that the great artists were those who best understood nature; and he intended also to shew, by a review of the history of the art, how minute were the changes which took place, and in answer to some who urged the desirableness of an entire alteration in present systems, with a view to novelty, how gradually the inventions of the old masters had been fostered. Comparing great things with small, that was to say, the laws of nature with those of art, we were struck by the occurrence of the same features in all animals, modified by a law of gradation. The snout of one animal became in another a proboscis, or, in opposite terms, the features which were expanded in one animal, in another were hardly recognizable. The arcuated and trabeated systems pervaded the whole of architecture, and yet invention had long consisted merely in the recombination of these elementary principles, at least not in the attainment of absolute novelty.

The professor then, to illustrate the subject further, glanced at the progress of invention, as seen in some of the most important examples of architecture. Commencing with the trabeated, or post-and-beam system, he showed that this, whether amongst the Egyptians, the Greeks, the Druids, or other nations, continued for a long period to hold possession of the art. Variations of character were effected by variations of size, or by other means, as for example, sculptured decoration, and the arch known to the early Egyptians, and used at an early period by the Romans in works of utility, did not for centuries create any change in the decorative character of buildings. Instances of the importance of the arch in Roman architecture, were shewn in the sections of one of the temples at Bäalbec, and in that of Venus at Rome. In the latter, the vault which formed the ceiling was 70 feet in span. Before alluding to the use of the arch in the Roman *thermæ*, he described the corresponding buildings of Greece, or *gymnasia*. He said, we must still hope for further enlightenment on the arrangement of these buildings, which, existing at such places as Hierapolis, and Alexandria Troas, it would be extremely interesting to find contemporary with the age of Alexander. He gave a striking instance of the importance attached to *gymnasia*, and of their magnitude, in shewing that the gymnasium at Ephesus was one of three which existed in that city, and, by one of his clever comparative plans, that the building would cover a square space extending from the back of the Horse Guards up to the enclosure of the park. He also showed how Mr. Wilkins, who was the first to clear up the difficulties of the other commentators of Vitruvius, developed the plan of the building in accordance with the description of the author. Passing on to the *thermæ*, he showed the vast extent of the baths of Caracalla, which would cover a space equal to that enclosed by Pall-mall, St. James's-street, Piccadilly, and Regent-street. He pointed out the beautiful forms, and the variety in the plans of the different apartments, and the effective introduction of apsidal and circular forms, and showed the immense size of the *cella solaris*, the dome of which was second only to that of the Pantheon. He also spoke of the ingenuity in providing the necessary

ASHIESTEEL BRIDGE.



abutments for those vast vaults, by disposition of the walls of the different apartments.

As Brunelleschi—when questioned by the pope as to his celebrated boast, replied, "Yes, give me a fulcrum and I can move the world;" so, in the next step in the progress of the arch, the architect of the Church of Sta. Sophia might have said, "Give me an abutment, and I can suspend a dome in the air." The professor gave a clear explanation of the manner in which this was effected, by means of "pendentives:" he then alluded to the night of darkness in which Europe existed subsequently, and the use of the Byzantine style, and showed how the pointed arch—the next step—might have originated by omitting the crown of the lofty vault of the hall of the baths, and prolonging the lines of the haunches, which would then meet in a point. He also showed how naturally the column placed against a pier, in the same apartment, and supporting the portion of the vaulting here concentrated upon it, might have led to the clustered columns and shaft supporting the groining in Gothic buildings. So, said the professor, here we saw instances how, from one link to another, the gradual chain of architectural progress was carried forward.

After describing the plan of Ely Cathedral, he passed to the condition of the art in Italy. In the earlier period of Italian architecture, we found that each house was a kind of fortress, and whatever decoration was practised was reserved for the internal courts. But when, with the revival of learning in Italy, a state of comparative quiet accompanied it, then a new field was open for the inventions of architects. Bramante, for instance, adopted a double order; and this, perhaps suggested by previous works, was certainly not found in the antique. Vignola employed cantilevers in an entablature, as afterwards practised by Sir Christopher Wren. Vignola might have gained some idea of this method from ancient paintings, but certainly not from the temple at Bäalbec, where a similar method is found, for Vignola had never heard of that place. Another feature, the window, underwent important modifications. Previously small, and shuttered below;—in the palace at Florence it was ornamented with a pediment, and other decorations. At first, so great an innovation seemed as if it would occasion nothing but ridicule, but this method of treating the window had endured ever since. These features, therefore, and others like these, had never previously been seen in architecture: this, then, was truly invention, and this the only description of novelty which could be successful.

These instances, the professor concluded, he had cited to show that, by attention to points arising out of structure, in our buildings, we might best attain excellence; but we must, at the same time, impress the character of the nineteenth century upon our works, and whilst recognising the value of precedent and authority, not shut our eyes to every other important consideration.

SUPPLY OF WATER TO THE CITY. — It is stated that the New River Company have agreed to furnish water to the whole of the courts and alleys in the city twice a day, *gratis*, for sanitary purposes.

ASHIESTEEL BRIDGE — WHINSTONE CONSTRUCTIONS.

SIR,—In the number of THE BUILDER for December, 1848, page 617, we observe a short notice of a bridge which we built last year at Ashiesteel, given in a report of a meeting of the Institute of British Architects,* in which Mr. Burn expressed his disapprobation of the *material* of which the bridge was built, by cautioning the junior members against the impression that this was a *good* material for construction.

What a strange conclusion he comes to! An arch has been built of 131½ ft. span to a radius of 110 feet, all of whinstone rubble, and yet Mr. Burn cautions the junior members against the impression that this is a good material. Why, Mr. Burn (unintentionally, we believe) does us much more honour than we think we are entitled to, as we differ from him so far as to hold that the material is good, more particularly for arches, and we beg to observe that it is a material far too much underrated by most of the architects and engineers of the present day. In many situations in Scotland and elsewhere, a saving from the use of it might be had, from three to four hundred per cent., in place of hewn stone or granite. A good whinstone arch is equal, if not superior, to hewn stone, the one being much more durable than the other. We never heard of a whinstone arch falling from age, and there are some in this country many hundred years old.

With this we beg to hand you a small sketch of our bridge, which we hope you may think worthy a place in THE BUILDER.

JOHN AND THOS. SMITH.

Darnick.

* It was further described in our last number but one, p. 34, *ante*.

ON THE CONSTRUCTION OF PRISONS.

THERE is no department in architecture which should call forth more of the study and attention of the architect than that of "prison-building," and being aware of many of the deficiencies which are apparent in the edifices already erected, the writer ventures to offer the following remarks to the public, trusting they may meet with a favourable reception, and be productive of beneficial results. Having for some time made this subject my particular study, and having taken every care to investigate, as far as possible, those defects to which I allude, I am inclined to hope that, in calling attention to it, I may not be considered as having entered the field unprepared. In this enlightened age, when art and science are making rapid strides to perfection, I consider it the duty of every man to contribute as much as may lie in his power to the advancement of those principles which are calculated to aid society in its moral and refined improvement. As there is no class of persons on whom more labour should be bestowed, in endeavouring to effect their reclamation, than the inhabitants of a prison, so should it be the utmost desire of every wellwisher to society, to neglect no opportunity of assisting in this praiseworthy object. Before immediately entering into a detail of the construction, I shall make a few preliminary remarks as to the advantages which one species of discipline appears to possess over another, which cannot be deemed inconsistent, as the plan of a prison will materially depend on the system which it is intended to carry into effect.

Punishment is the reward of crime; but though it is indispensably necessary for its suppression, and for the protection of the community against the assaults and malicious intents of the wicked, yet this alone is not the only point we are to consider;—there is another and a more exalted one, which should receive our strict attention — namely, the "reclamation of offenders." Since prevention is better than the cure, let us rather study the best possible means for the suppression of vice, than the most severe and painful mode of punishing those who have fallen victims to it. How often are we afforded examples of punishment strengthening crime: the greater the chastisement received by a man hardened in villany, the more determined he becomes to resist the arm of the law. What benefit, then, does society receive, if the individual sentenced to undergo a certain term of confinement within the walls of a prison—that time having expired—comes forth again upon the world unimproved, and contemplating the commission of more wickedness? It does not follow, because a man may fall a victim to passions which induce him to commit a crime, and for which the law sentences him to be incarcerated, that he may not be possessed of qualities which, if properly developed, would not only enable him to occupy a respectable position in society, but would also tend to the suppression of those evil propensities to which human nature is subject. In *what* does the line of demarcation consist, which is so widely drawn between the wild untutored savage and the educated man? In *what?* but in the cultivation of the mental faculties and understanding which man, in his most primitive state, is endowed with. Then it is the duty of those who are invested with authority to exercise their power both humanely and judicially; not only to reward the good, and punish the wicked, but, by a careful education of the uncultivated faculties of the latter, to try and restore to society those who, perhaps from want of instruction alone, are looked upon as useless members. This is the grand desideratum to be obtained, and punishment alone will not effect it. Let the understanding and feelings of the prisoner be appealed to; let him be instructed in those principles which tend to the exaltation of the mind; let his habits be well regulated; and, above all, let him have sufficient time and opportunity for meditation and reflection. In the temptations and allurements of a sinful world, intoxicated by pleasure or hardened by misfortune—contaminated by bad examples or driven to desperation by the artful cunning or malicious advice of depraved associates,—many a man, possessing innately good and honest principles, may be prematurely hurried into sin, which, if a little time were afforded for reflection, never would have been committed.

When I enumerate the many beneficial influences which reflection has upon the mind, I wish it also to be understood that a certain regimen of discipline is necessary to be observed, which may aid in the furtherance of the objects for which it is intended.

That which I consider to be an indispensable accompaniment to the provision of time and opportunity for reflection, is "a complete seclusion from all those characters who, by precept or example, might interfere in each other's reformation." It is, then, for *us* to find out *that* species of discipline which will embrace the objects I have enumerated, and which will combine not only the punishment of the offender, but also assist in every possible manner in his ultimate, if not his immediate, reformation. It is unnecessary to dwell, at any considerable length, upon the pernicious results arising from evil company and bad example; and as man, in his intercourse through life, is continually exposed to temptation, let his sojourn in a prison be calculated to enable him to resist the allurements of vice when his term for confinement shall have elapsed, and let him return to the world a better man than when first he entered his cell. It is against reason to expect that a man who has been tempted, or, perhaps, in a great measure forced, to sin, by dissolute companions, will, while under the influence of their precepts, make the slightest advances towards a reformation; and therefore it is absolutely necessary that a species of discipline be adopted, which will prevent the possibility of such communication taking place.

It is almost unnecessary for me to say (as it can be easily concluded from the preceding observations), that I am a strict advocate for the maintenance of the *separate system;* and though prejudices have been cast upon the public mind as to its influences, by the erroneous opinions of authors, who have either taken an unfair view of them, or have not given themselves the trouble to inquire into the results produced by its observance, but have taken particular care to point out defects which existed onlyin their own imagination,—it has been advanced that, on first viewing the principles of the separate system, humanity becomes affected by the means employed in carrying them out; but it is only in consequence of the mind being uninitiated in the beneficial results arising from their practice, and never for a moment taking those into consideration, but solely depending and giving its opinion on the effect produced upon its own nature, that this hasty conclusion is come to. There are many who consider that one of the principal advantages to be derived from the *silent system* (as opposed to the separate system), is, that the prisoners have the consolation of seeing each other. Now, I have already said sufficient, with respect to the detriment which arises from bad company, to render any further comment unnecessary; but those who admit that such communication is advantageous, in my opinion, advocate a doctrine which is contrary to all reason and common sense. Another defect which is very manifest in this system is, the opportunities which are offered prisoners of committing breaches of discipline. I have heard it said that the great vigilance of the officers who enforce the observance of this system, prevents the chance of any intercourse taking place between the prisoners; but it is my firm conviction that, no matter how great the watch that may be kept upon them, or however efficient the officers may be to discharge their duty, they will, notwithstanding, find means to explain to one another their sentiments. A look, a gesture, a motion of the hand, will frequently convey feelings which the tongue dares not utter. It must, then, follow as a matter of course, that detection and punishment are the immediate results of a violation of the prison laws. Now, how much better would it be to prevent all possibility of such being the case, than to throw a man in the way of temptation, and punish him for indulging in it. It would appear to me that, to carry out this system to any proper extent, the workshops of the prison should be constructed on the same principle as a *whispering gallery*, so as to reverberate the least sound distinctly; for it is impossible that any human ear, without artificial aid, could detect the whispers among a number of prisoners in a large room. I could enumerate many other deficiencies which are obvious in this system, but as too minute an examination into its principles might be considered irrelevant to the purposes of my essay, I shall merely content myself with making such remarks as are necessary for my subject.

Let us now take a glance at the principles on which the separate system is conducted; and having compared the one with the other, I shall then leave the subject to my readers' discrimination, to draw their own conclusions. The prisoner inhabits an airy, well-ventilated cell, he is supplied with whatever machines and implements are suitable to his trade,—or, if he has never applied himself to any, he is taught one; he is permitted to have pens, ink, paper, and books (particularly those which are calculated to improve his mind and inspire within him a sorrow for the past, a solace for the present, and resolutions of amendment for the future. He is visited daily by the governor or his deputy, he receives comfort from the spiritual advice of the chaplain, he is permitted to have free communication and opportunities of intercourse with the officers of the prison, occasionally his friends are admitted to see him, he is allowed a sufficient quantity of air and exercise, recompensed for the amount of his labour,—and, in a word, he is provided with everything necessary for existence. It is only by contrast we can judge impartially, and I cannot understand how any man, giving the subject proper consideration, can declare himself to be an enemy to a system which is based on principles that are the very foundation of everything that is calculated to bring a man to a proper sense of his duty, both spiritually and temporally.

The prison in Philadelphia is constructed for the observance of the separate system, but there is one very manifest defect in it, which I cannot but notice. On the principal story, small narrow yards are attached to the cells—of course intended for the recreation of the prisoners. Now, for two reasons this should be objected to. In the first place, it prevents his inspection by the officers; and, in the second, it must prove detrimental to his health, as it is necessary to be observed that they should be detached from the main building, and constructed so as to admit a thorough current of air to pass through them: and I also find that, on the other stories, in order to compensate for the want of the yard, two cells are allowed to each prisoner. However pernicious the first defect may be to which I have referred, *this*, I do not hesitate for a moment to say, is doubly so.

There are no structures which require more precautions to be taken for the preservation of the health of the inmates, than "prisons," and there is a great responsibility thrown upon the architect to make such provision as will enable the governor and his officers to carry out the system, without affecting the health of those under their charge. As the mental faculties of every human being are more or less influenced by the state of his health, it is of very important consequence that the physical, as well as the moral benefit of the prisoner, should be attended to. The first advance towards this object should be in the selection of a site whereon to erect the building, and to this point too much consideration cannot be given. We are frequently afforded examples of malignant distempers breaking out and spreading to a fearful extent in prisons, and hurrying immense numbers of the unfortunate inmates to a premature grave; and these results have been too often found to arise from a previous inattention to healthful principles, in constructing the buildings in low, damp situations, exposed to the injurious effects of fogs, or in the neighbourhood of stagnant water. However destructive such inattention may be in the erection of other structures, it is doubly so in a prison, when we take into consideration that its inhabitants must perpetually suffer from its influences, and are denied the possibility of refreshing themselves by inhaling the pure atmosphere beyond its walls.* J. J. L.

Dublin.

Exposition of Manufactures in Birmingham.—A committee has been appointed to arrange an exposition of local manufactures, on the occasion of the visit of the British Association to this town in September next. We trust the endeavour will meet with the earnest co-operation of the manufacturers.

* To be continued.

THE GAS MOVEMENT.

METROPOLITAN AND PROVINCIAL.

While of late recording the wondrous alacrity and zeal with which (on the eve of certain city elections, we believe) the majority of the City Sewers Commissioners were advocating the city gas-consumers' interests, and determining, with the aid of half a million of money, to extinguish all monopoly of gas within the city bounds for ever,—by a slight misgiving as to the somewhat suspicious intensity of that zeal, and even while giving, as in courtesy bound, to those who displayed so much of it, all due credit (more, it now appears, than all the credit really due), for its sincerity, we were induced just gently to hint, that "the city gas-consumers seemed to be somewhat suspicious of the permanence of the good intentions of the authorities." Now, it only remains for us, as in equal courtesy bound, to compliment "the city gas-consumers" on the perspicacity of their suspicions, and the depth of their sagacity. They were clearly far too old and experienced "birds of a feather" either to be caught with chaff, or entrapped by those "good intentions" with which Guildhall was at that time paved; and they hence resolved not to leave their good and hopeful cause entirely in the hands of such ticklish paviours. The City Sewers Commission has, in fact, eaten in its own wordy vapouring "bill," without even choaking on the tail of it. By a majority of 19 to 7, all its determinations and protestations have suddenly vanished in the cool *resolution*, "that no further proceedings be taken in prosecuting this bill." The few staunch and consistent supporters of previous resolutions, now in the minority, "were extremely indignant," as well they might, "after the infinite pains taken by the corporation to accomplish a reduction in the exorbitant price of so necessary an article." A trick such as this may be played but once, and may be played moreover at rather too high a stake. As to those, however, who can scarcely be said to have been betrayed, since they never really trusted, we doubt not they will go on with energy and resolution, increased, in place of diminished, by an act of self-stultification so complete.——A "Plain Statement" was lately addressed to these commissioners, by a "Director of one of the Metropolitan Gas Companies,"—doubtless a city one, reciting a few of the fusty old fallacious arguments in favour of monopoly and high prices, arguments which might have been urged, with equal ineptitude, years since, while prices were double what they even already are. But "One of the Commissioners of Sewers for the City" (of course, one of the staunch seven), has thought it advisable to publish "An Examination of the 'Plain Statement,'" in which he good-humouredly, but efficiently, knocks the director off his wooden pegs. It is needless for us, however, 'at this time of day,' to enter further into either 'Statement' or 'Examination.' Nor shall we deign even to fence with another 'Statement' which the alarmed monopolists have profusely showered over all the walls, in at least one extensive district of the metropolis. All we need do is to refer to The Builder's "Indices," under head of "Gas Movement," &c., for the last few years. ——On the 12th of February last, under head of "Gas in Guernsey," we made an assault on the stronghold of gas monopoly there, and endeavoured to point out to the gas proprietor (a resident in the metropolis by the way), the impracticability of such a price as 12s. per 1,000 cubic feet, and the folly, therefore, of persisting in the attempt to profit by sustaining it. The *Guernsey Sun* had also called the attention of the Guernsey gas consumers—or would-be gas consumers rather—to our disinterested efforts in the cause of cheap, good, and abundant gas-light. The subject, it appears, continued thereafter to ferment, until the proprietor has at length been induced to promise a reduction of 2s. per 1,000 feet; but, foolishly for himself, postpones the reduction till a time when the consumers altogether cease from using their expensive gas for six months longer. Doubtless the proprietor calculates on thus diminishing the chance of competition (threatened at a further reduction of 3s. per 1,000) in the mistaken idea that he is putting off an *evil* day, while he is only tampering with his own best interests;

though, indeed, he need not expect *much* benefit from so small a reduction on so large a price. As it is, he has actually prevented his shop-keeping customers, by mere exorbitance of charge, from lighting their shops with gas, except on a Saturday night; and has kept the streets of a town parish population of 16,000 to 17,000, without even the expensive luxury of a gas light, "Saturday or Sunday," ——The Wirksworth Gas Company have reduced their price, at one step, from 12s. to 8s. 4d. ——The Hull corporation have resolved to allow the pipes of a new company to be laid through the streets of the town, the inhabitants having failed to induce the present lessee to lower his rate of charge from 6s. 8d. to 5s., as both lessee and shareholders have to reap their separate profits off it. They will probably *now* come to a mutual understanding. —— Stockport and Belfast are to be lighted, it is said, with the hydrocarbon gas prepared from tar and water. It is to be hoped the authorities are awake to the fact that failures abroad have already occurred with gas prepared on a like principle, and to the necessity therefore of being well-assured that the causes of previous failures have been overcome. Gas is thus prepared, it is said, at 1s. per 1,000 cubic feet.

ROYAL INSTITUTE OF ARCHITECTS.

AT a meeting held on the 5th inst., Mr. Poynter in the chair, a donation of great interest and value from Mr. Henry Garling, Fellow, was announced, namely, 20 folio volumes, including an early edition of Palladio (1570); Hamilton's Vases; Original Designs, by Lewis; Chambers' Civil Architecture, 3rd edition, with autograph of the author; W. Addam's designs (of Edinburgh); Gibb's works; and Rondelet's *Traité Théorique et Pratique de l'Art de Bâtir*. The chairman very properly commented on the excellence of the quality as well as the number of the works thus liberally presented by Mr. Garling.

The library of the institute is now becoming very extensive and excellent, and will, it is to be hoped, be made good use of by the students. Mr. John Edward Gregan, of Manchester, was elected a Fellow.

Mr. Scoles then read a paper "On the Topography and Antiquities of the City of Jerusalem," the principal portions of which we shall give *in extenso* hereafter. In the course of it, the writer alluded to Mr. Fergusson's published theory as to the Mosque of Omar and the Church of the Holy Sepulchre, and that gentleman being present, an interesting discussion ensued. Mr. David Roberts, R.A, (some of whose capital sketches were amongst the illustrations of the paper), joined in questioning Mr. Fergusson, who stood gallantly and good-naturedly a cross fire of objections.

Mr. Fergusson's views, as we gathered, may be briefly stated thus: namely, that the building known as the Mosque of Omar is, in truth, the Church of the Holy Sepulchre, and that what is called the Church of the Holy Sepulchre, and was burnt in 1808, was a building not earlier than the 12th century. His principal reasons for the first part of this belief are, that the so-called Mosque of Omar is unquestionably a circular Christian building of the time of Constantine, and is built over a rock standing up 15 feet from the floor, with a cave in it; further, that it could not have been a mosque, its shape and arrangements being contrary to the requirements of the religion. In reply to the question, at what period was the truth lost sight of and the title of Church of the Holy Sepulchre given to the edifice which now bears it, Mr. Fergusson said about 150 years before the Crusades.—Mr. Scoles did not believe that the (so called) mosque of Omar *was* of the age of Constantine; the main arches were slightly *pointed*. He had never seen a pointed arch as old as Constantine. He considered that the columns used were from a more ancient building, but the structure itself was of a comparatively recent period.—Mr. Fergusson contended that the arches being pointed in no way weakened his opinion; he had elsewhere shown that the pointed arch, from 800 years B.C., had been the arch of that country—that is, the horizontal arch bracketted inwards to a point.

The Dean of Westminster, with reference to a specimen of the stone of which the walls of Jerusalem are built, remarked that the stone in some of the most ancient buildings was not from beds of ancient formation, but from those which were actually in course of formation at the time, and which were taken from the quarry while ductile, and indurated afterwards. The temples at Pœstum, known as antiquities by the ancients themselves, were of limestone, the formation of which is still going on,—an imperishable material.

IMPROVEMENT OF OVENS.

I HAVE long been anxious to turn the attention of practical men to a most important improvement in the construction of bakers' ovens. In a word, in place of the close unwholesome oven now in use, I propose to substitute a *ventilating* one, securing at once the health of the journeymen, and saving a large quantity of a very valuable product, alcohol, to wit. The recent discovery by M. Violette, of the carbonization of wood, by means of heated steam, is greatly calculated to further this desirable innovation. By means of steam heated to 480 degrees Fahrenheit, it has been ascertained that the dough is converted into a light, fragrant, well-baked, and well-tasted loaf. There is no risk attendant on the process, as the steam, after coming in contact with the bread, is suffered to escape, loaded with all the impurities emitted by the bread, not into, but beyond the precincts of the bake-house. The steam is generated by a helix, or spiral iron tube, placed in a common furnace, which would further serve to heat the oven, and economise the steam. The other important economical applications of M. Violette's discovery, in roasting coffee, cooking, in the seasoning of timber, in the pharmaceutical and other arts, I do not here propose to enlarge on. HENRY M'CORMAC, M.D.

SCULPTURE IN RELATION TO MODERN MEANS AND REQUIREMENTS.

AT a *conversazione* held in the Royal Institution, Manchester, last week, Mr. George Wallis delivered an address on the subject, and urged that our artists should use English instead of Greek eyes. He thought the artist should go to nature, but if so, it was essential he should read nature for himself: that he should not do it without availing himself of the tests and aids which those who had preceded him were able to give him was true, but to bind himself down to the forms of expression produced before him was wrong. If he did so, he thought in a groove which he could not get out of, for he found himself pressed on by the standard set up for him, and he could not give vent to his genius for the realisation of the works he proposed to accomplish. He must look to the productions of antiquity as the standard by which he was to work in the spirit of his own time. Hence it was that the artist should seek objects from his own times, from his own religion, and for his own times, and endeavour to realise them: he said this of painting as of sculpture. We heard an outcry for originality in art, but they who joined in it forgot that when a new work was produced, it was criticised and judged of by an antique standard, for which we went back to the past.

Speaking of modern architecture he said,—Beauty had not been considered to any extent, and where originality had been studied it had run into absurdity rather than beauty. One great cause of this want of beauty was that we were trammelled by fiscal restrictions, and until we could mould bricks into forms and shapes, with which we could produce beauty in a building, we must be content to go on with square bricks made according to an exciseman's notion. In speaking of sculpture he was not alluding to mere marble statuary, but to all works in any material capable of carrying fixity of shape. Within the last century the mechanical arts had progressed to an extraordinary degree; new materials had been discovered, in which works of art could be produced, and of which the ancients had never dreamt. We had means of production which, fifty years ago, would not have been conceived, and, with them, means of adapting forms of beauty to objects of utility. By getting our sculptors to pay more attention to the generalization of their art, and the diffusion of that beauty which they had been too apt to consider as merely applicable to one department of it, we should produce such an effect on the public taste, as would educate the people to appreciate its higher developments. But to suppose that no man was a sculptor unless he was a carver of marble, was to use the term in a confined sense.

In the course of a discussion which ensued, Mr. Wallis, remarking that we could not expect the public to give reward unless their minds were educated, said,—Our institutions were not fulfilling the purposes for which they were established; our schools of design were only drawing schools, and far from inculcating originality of conception or thought in the student, simply taught the mechanics of the art and nothing more.

THE NEW HALL, &c., PEMBROKE COLLEGE, OXFORD.

VARIOUS additions have lately been completed in Pembroke College, Oxford. Our engraving is a view of the new hall, which forms the western side of the new court there. This is a room 74 feet 8 inches by 27 feet, and 42 feet high from the floor to the ridge of the roof. The hall is divided into six bays, one of which, at the extreme end, where the dais is placed, is a trifle wider than the others. The main ribs of the roof spring from stone corbels, ornamented with roses, the badge of the college; the spaces between the ribs are filled with tracery, and the wall plate is carved with shields and roses alternately. The roof is surmounted with a lantern, constructed with a view to obtain ventilation. The hall is lighted by four four-light windows on each side, two lights in height, and also by a large bay window on the dais, of eighteen lights. All these windows are to be filled with stained glass, which is to be executed by Messrs. Chance, of Smethwick, near Birmingham. The dais window has a stone groined ceiling on the inside.

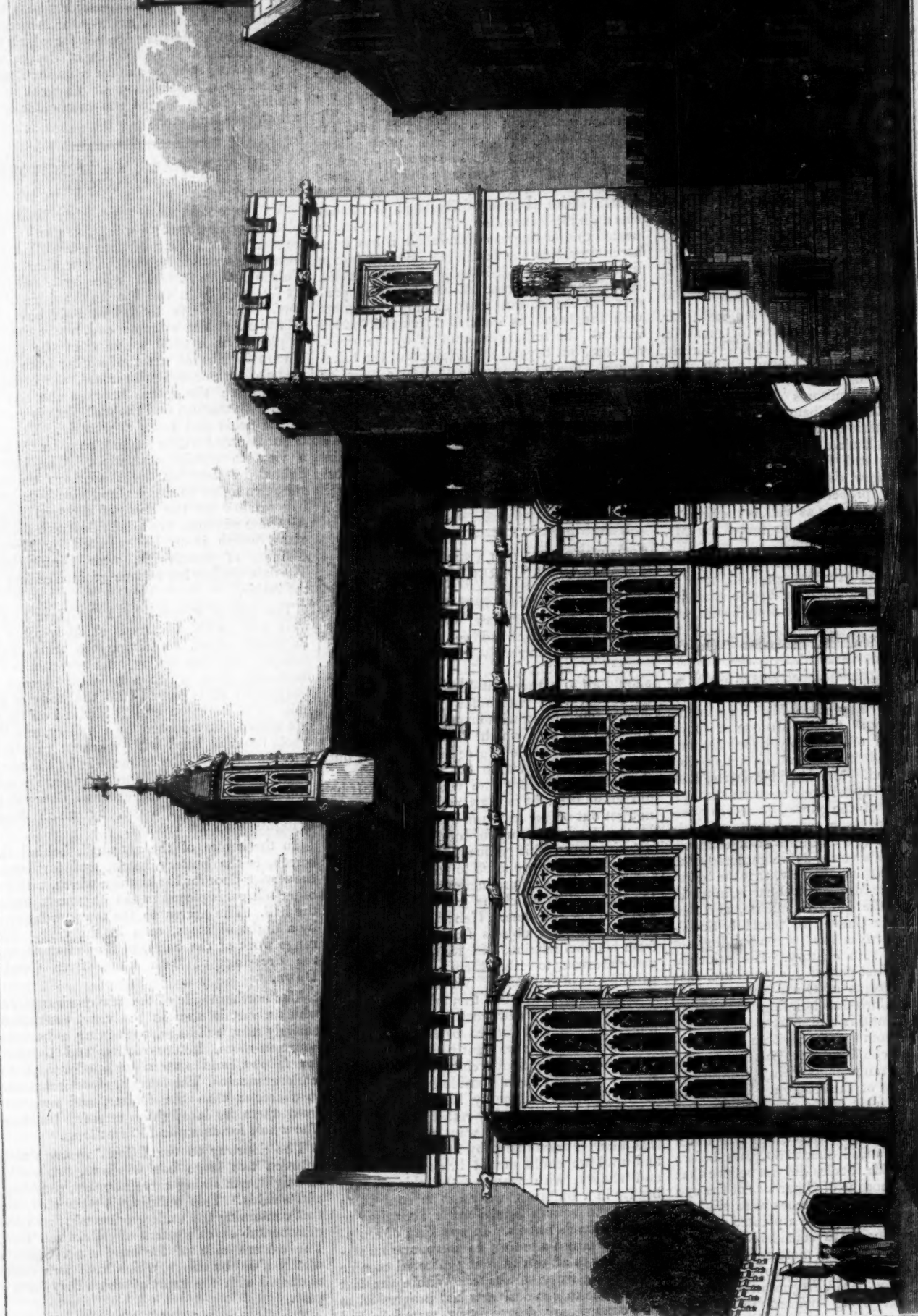
The hall is warmed by a fire-place on the west side, with a carved chimney-piece of Painswick stone, containing the arms of the college; and likewise by an apparatus in the basement, from which a constant stream of temperated air is passed into the body of the hall. The northern end is divided off by an oak screen, surmounted by a gallery, and the whole room is lined with wainscot panelling 8 feet in height. The entrance is by the tower at the north-east angle, forming an open porch, groined with stone, the external doorway of which is at a right angle, by which direct draughts of air are avoided.

In the centre of the ante-hall, behind the screen, is the buttery hatch, and further on the service-door for the kitchen, which, with the other offices, is placed in the basement, under the hall. The access to the tower archway is by a flight of steps, seen in the view. The range work of the hall is of Bladon stone, and the dressings of Bath stone, from Combe Down.

The northern side of the new quadrangle, of which a part is seen in the view, consists of entirely new buildings, containing a bursary, common-room, lecture-rooms, and lodgings for fellows, and sixteen sets of rooms for undergraduates. The latter are less ornamental in character than the former, and separated from them by a slightly recessed building. The whole forms a pile 160 feet long.

The doorway to the fellows' rooms stands between two large bay windows, two stories in height, containing carved tracery, panelling, and shields. This building is parapeted, but that containing the undergraduates' rooms has ornamental eaves gutters of galvanized iron. The eastern side of the new court consists wholly of old buildings, which have been made to accord with the court of which they form a part.

The architect is Mr. John Hayward, of Exeter. Mr. M. Arding, of London, has erected the hall and restored the east side of the court. Praise is due to Dr. Jeune, the master, and the fellows of the college, for their efforts to improve the college committed to their care.



THE NEW HALL, PEMBROKE COLLEGE, OXFORD.—Mr. John Hayward, Architect.

EXPERIMENTS, &c., ON CAEN STONE.*

TABLE A.—*Chemical Analysis.*†

	Gros Banc.	Banc de 4 Pieds.	Franc Banc.	Outside of St. Stephen's Chapel, Westminster.
Carbonate of lime	86·5	86·9	82·5	97·3
Silica	10·5	10·5	13·6	2·0
Alumina	3.0	2·2	3·2	
Oxide of iron	A trace.	0·4	0·7	0·7
Magnesia.....	A trace.	A trace.	....	A very slight trace.

R. PHILLIPS, F.R.S.

TABLE B.—*Weight of 6-inch Cubes.*

	Ordinary state.			Thoroughly wet.			Thoroughly dry.			Weight absorbed.		
	lbs.	oz.	dr.	lbs.	oz.	dr.	lbs.	oz.	dr.	lbs.	oz.	dr.
Gros Banc	15	4	1	16	14	9	15	2	10	1	11	15
Pierre Franche	15	8	6	17	2	5	15	7	0	1	11	5
Banc de 4 Pieds.....	14	12	1	16	7	14	14	10	1	1	13	13
Pierre de 30 pouces.....	16	0	10	17	10	7	15	15	7	1	11	0
Franc Banc.....	14	8	4	16	5	14	14	5	12	2	0	2
Ranville	17	12	12	18	10	5	17	12	5	0	14	0
Aubigny	18	12	13	19	7	12	18	12	14	0	10	14

C. H. SMITH.

TABLE C.

Experiments upon Cubes of 2-inch Sides, on power to resist crushing.‡

Name of Quarry or Bed.	Pressure on bed.	Pressure on edge.
	Tons.	Tons.
Gros Banc .. Top of block	3·25	....
,, .. Middle do.	....	8·05
,, .. Do. do.	5·97	....
,, .. Bottom do.	2·97	....
Pierre Franche	7·18	....
,, ...	....	6·63
Banc de 4 pieds	2·57	....
,, ...	....	2·38
Pierre de 30 pouces	3·35	....
,, ...	....	2·67
Franc Banc.....	2·10	....
,, ...	....	2 25
Ranville	6·2	....
,, ...	5·43	....
,, ...	....	5·79
Aubigny	7·41	....
,, ...	10·78	....
,, ...	....	9·78

GEORGE GODWIN, F.R.S.

THE accompanying tables shew the physical and chemical properties of Caen stone. The specimens experimented upon were obtained direct from the quarries for this especial purpose, and may be considered fair average samples of the stone which the beds respectively produce. Of the five beds from the Allemagne quarries, three have been subjected to analysis by Mr. Richard Phillips, F.R.S.—namely, the gros banc, the banc de 4 pieds, and the franc banc. It will be observed from table (A) that, as regards chemical composition, these three beds appear to be almost identical; and there is no reason to suppose that in this respect either of the other beds differs from them. The analysis of one specimen of old Caen stone, taken from the exterior of St. Stephen's Chapel, at Westminster, is placed in the table for comparison, because, in general appearance, this stone resembles that employed outside the oldest buildings at Caen. It has been exposed to the usual atmospheric influences for several centuries, and presents scarcely any symptoms of decay, therefore it will be interesting to see in what respects an old stone, well known to be durable, differs from the three samples obtained from the Allemagne quarries. In this instance we learn that a durable stone is composed almost entirely of carbonate of lime, with very small portions of other ingredients; whereas the franc banc, usually considered to be a perishable stone, contains a smaller quantity of carbonate of lime, and a larger amount of silica, than either of the other specimens.

Table (B) exhibits the avoirdupois weights of 6-inch cubes (one eighth of a cubic foot)—first, the weights of the specimens in the state in which the stones are usually employed for building purposes, having only been squared, and placed under an open shed, exposed to the atmosphere for several weeks.

The second column indicates the weights of the same cubes, after having been immersed in water forty-eight hours, so as to become completely saturated, such weights having been ascertained immediately after the cubes were taken out of the water, and wiped with a dry cloth.

The third column contains the weights of the same specimens, after having been perfectly dried, in a hot-air chamber, for several days; in the meantime, being frequently weighed, until ultimately they ceased to decrease in weight.

The fourth column shows the difference of weight between the same specimens, in their dried and in their saturated state; and indicates, therefore, the quantity (by weight) of water absorbed by each stone.

Table (C) shows the results of experiments relating to the cohesive strength of the stones, or their resistance to pressure, made with a hydrostatic press, under the eye of Mr. Godwin, upon cubes of 2-inch sides, in duplicate: the figures represent tons and decimals of a ton. The chief value of this table is to determine, if possible, whether any difference exists in the cohesive strength, if crushed with the pressing surfaces parallel to the horizon, as the stone lay in the quarry, or if the pressure be applied edgewise. It has long been the custom to attribute all failures of perishable stone to inattention in not placing them in the building on their natural bed. In a recent number of THE BUILDER (309, January 6th), a correspondent, advocating the use of Bath stone for a church at Liverpool, states that, "Nine-tenths of the failures imputed to this stone have occurred through the ignorance or inattention of workmen or superintendents in neglecting to work the stones, so as to lay on their natural beds, which has laid the pores of the stone open to the effects of rain and frost." From my childhood this has been the universal theme of those who are half-learned in such matters. It is easy to determine the bed-way of sandstones; but with reference to limestones and oolites, in the absence of fossil remains—and such things are of extremely rare occurrence in either Bath or Caen stone—I cannot discover any means of detecting the slightest symptom of lamination, or, when once a block of Caen stone has been disturbed, of saying which way it lay in the rock. I have frequently heard this question discussed, during the last 30 years, by many intelligent practical masons, and others conversant with the subject, who have professed their ability to determine, to a certainty, which is the bed way of a specimen of Bath or Caen stone. But, although I have grown grey in the service, I candidly confess that I am still ignorant upon the subject; and must either be extremely dull of comprehension or they are deficient in the means of communicating this learning to a "brother chip." The importance of such precaution is generally very considerably overrated; I do not think it signifies which way a stone is fixed unless it presents a decidedly laminated structure, which scarcely ever occurs amongst the oolites. A stone of an open, powdery, and slightly cemented texture will, if exposed to the weather, decompose in a comparatively short space of time, in whatever direction it may be fixed, or whichever surface may be parallel to the horizon.

Throughout the whole of these investigations and experiments, the utmost care has been taken to attend to the marks, indicating the uppermost side of the stones, with reference to their position in the quarry; thereby to insure the greatest accuracy, especially as regards cohesive strength. The table of experiments now under consideration, will do little or nothing towards proving that there is an appreciable difference in crushing the stones flatwise, or edgewise, of the bed. According to theory, we might expect that they would bear a greater pressure, if applied parallel to the bed, than if edgewise; in the the table before us, there is very little difference, and in two cases out of the seven, namely, the gros banc and the franc banc, the specimens bore a greater force edgewise than on their bed.

Were it possible to determine this question to a certainty, so that the mason would have no difficulty in ascertaining the bed, or in working the stones for a building, so as to lay them all on their natural bed, the cost of masonry would then be greater, because he would frequently have to cut the blocks to a great disadvantage.

C. H. SMITH.

BLIND BUILDERS.—For building a farm house, farm buildings, and two cottages; Messrs. Morris and Hebson, architects.

Watkins	£3,449
York.....	3,090
Clements	2,960
Higgs	2,838
Bent.....	2,500

The quantities were supplied.

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* See p. 38, *ante*.

† This, so far as we know, is the first analysis of the Caen stone which has been made. Considering that an analysis would be useful to the public, we solicited this from the Museum of Economic Geology, for which the public pay. The director of this establishment, however, considering perhaps that it was rather to benefit ourselves than the public that the application was made, declined to comply with it. We do not quarrel with the decision, but we venture nevertheless to remark that a contrary course would have been more gracious, and, we cannot help thinking, nothing more than the public and ourselves might expect. However, this being the case, we obtained the professional assistance of a gentleman (connected, too, with the Museum), in whom our readers will place confidence, Professor R. Phillips, and, though probably the half-dozen lines, the result of his investigation, will not lead to the sale of as many additional copies of THE BUILDER as they cost guineas to obtain, the occurrence will, we trust, serve to show our anxiety to place the subject before our readers in as perfect a form as possible.—ED.

‡ These experiments were made at Thames Bank (by the kind permission of Mr. Cubitt), with the assistance of Mr. Dines and an excellent hydrostatic press. The singular and striking difference in the results of the experiments on the *gros banc* is attributable to the varying strength of different parts of the stone, even in cubes of 2 inches adjoining each other in the block. This fact makes the table of comparatively little value towards determining the strength lost or gained by placing the blocks in a building the same way as in the bed.—ED.

BIRMINGHAM WORKHOUSE COMPETITION.

The voting in committee on the seven selected plans terminated thus:—Mr. Hemming (Birmingham), 17; Messrs. Drury and Bateman (Birmingham), 16; the rest no where. The greatest dissatisfaction prevails, and has caused a shower of letters on us, containing charges against various parties. Both the plans on which the question ultimately turned are by ex-members of the board, whose places are positively not yet filled up.

It remains to be seen if the Board will ratify the decision of the Committee without further investigation,—we hope not. The selected plans may, for aught we know, be the best submitted, but unquestionably the circumstances attending the selection are most disreputable.

The following is suggested by a correspondent as a course to be taken:—

1st. That a requisition, signed by all the competing architects, be addressed to the Board of Guardians, requesting them to appoint three architects of reputation, from a list to be submitted, with instructions

2nd. To examine and report upon the several designs for the proposed new workhouse.

3rd. To select three such designs as may best provide for the accommodation of 1,550 inmates,—having due regard to convenience of arrangement and classification; ready access between the various classes and their dining-hall and chapel; economy of labour in the working and household departments, supervision, ventilation, and drainage; ample, but not unnecessary extent of buildings; cheerfulness of aspect; sound, but not extravagant, construction, combined with a sufficiently ornate style consistent with the object of the buildings.

4th. To make especial remarks as to the respective merits or demerits of the three designs so selected.

5th. That the authors of the three so selected be requested to furnish such further explanations as the objections urged against their respective designs may render necessary.

6th. That the Board of Guardians, being in possession of such evidence, proceed to select such design as shall best fulfil the several conditions.

7th. That when the final selection shall have been made, the opinions of the three examining architects be printed, and the whole of the designs sent in competition be exhibited to the public.

ENCROACHMENT ON THE NEW-ROAD, ISLINGTON.

METROPOLITAN IMPROVEMENTS.

Whilst contemplating with satisfaction the progress of opening new lines of street, widening others, and removing obstructions, it may excite some surprise to have our attention called to a movement in the opposite direction, which demands the attention, if not the interference, of the public.

The most important thoroughfare along the north side of the metropolis is the New-road, and in proportion as its importance has increased from the vast extension of buildings beyond it, which has rendered it now more an internal street than an external road, so it has been gradually encroached upon, and is likely to become, in a few years, in its central portion, more like an ordinary street than the fine open avenue that it was originally. The fact is, that from the corner of Osnaburg-street to the top of the hill at Pentonville, the ground in front of the houses, originally appropriated as gardens or open courts, has, in numerous instances, been built upon, to form shops and places for business, close out to the foot-path, particularly between the first-mentioned point and the Hampstead-road; and a large group of shops has very recently been erected near the corner of Osnaburg-street. Thus, the view and free air are obstructed, and the openness which characterized this leading thoroughfare is becoming gradually extinguished. For many years past I had observed the increase of this evil, and lamented it as one that could not be remedied or prevented, conceiving that the parties had a right so to deal with their premises, and that the public view of the matter, if it ever occurred to them, was not for a moment weighed against the commercial or pecuniary advantages to be gained by this mode of occupying their frontage ground. Under these circumstances I was agreeably surprised to learn that these erections are actually *illegal*, and in contravention of a law specifically framed for the prevention of all such obstructions; it is, therefore, not a little astonishing that the law should not have been enforced, and that it should so long have remained inoperative.

The Act of the 7th Geo. IV., for the consolidation of the metropolitan roads, provides that no building shall be placed within 50 feet of the New-road, or within 40 feet of the City-road, on any new foundations; and gives summary power to remove any such buildings as nuisances; but the powers of this Act were transferred by the 10th Geo. IV., to the respective parishes on which the roads are situated; and the result shows how inefficient are such powers when so distributed, as compared with a central body of commissioners. Where private interests are involved, and legal proceedings are necessary to carry out a public object, it is hopeless to expect the interference of a parochial vestry, unless they can be urged forward by the force of public opinion, and this certainly is a case in which that potent lever might and ought to be employed. I hope, therefore that the powerful aid of The Builder will not be wanting on this occasion. Whilst so many thousands are being spent in widening and disencumbering our streets and thoroughfares, it would be a great reproach to allow one of the principal lines to be narrowed, and probably occasion hereafter a large outlay of public money to remedy an evil which the legislature had wisely provided against, but the proper authorities had foolishly and culpably neglected.

Viator.

SOCIETY OF ARTS.

On the 31st of January (Mr. W. Tooke, F.R.S., in the chair), a paper by Mr. A. Claudet was read, "On the Photographometer, for measuring the intensity of the chemical action of the rays of light on all photographic preparations, and for affording a means of comparing the sensitiveness of the same." The art of photography, observed the author, is founded on the property with which light is endowed, namely, that of producing a photographic effect when it strikes upon certain chemical compounds. The effect being in proportion to the intensity of the light during a given space of time, it is necessary, for the success of the operation, to be able to ascertain the exact power of the light at any particular moment; and the only means of so doing hitherto possessed by the photographer is the effect it produces on the eye. A few only of the rays which emanate from the sun are capable of producing on the chemically-prepared surface an effect which is the cause of the photographic picture; and if it were possible to admit into a room only the rays which are endowed with the power of affecting the photogenic preparation, the objects in the room would not be visible to the eye, as the room would appear to be plunged in darkness, while the objects in it would reflect some invisible rays which are capable of producing the photographic image. The property of absorption possessed by red, orange, yellow, and green glass being known to photographers, and the power of admitting through blue glass nearly all the photogenic rays which are not luminous, combined with the improvements which have taken place since the discovery of the art by Daguerre, enable the photographist of the present time to employ a very soft light, and to place the sitter in the shade. As the result of the photographic operation depends on the intensity of the actinic rays, and also upon the degree of the sensitiveness of the chemical preparation, Mr. Claudet has constructed an apparatus which is not only capable of measuring the photogenic light, but of testing the sensitiveness of the chemical preparation of the Daguerrotype plate. This instrument is constructed so that a plate being placed upon an inclined plane will always fall with the same rapidity for each operation. The plate has seven vertical slits or openings cut in it; these are placed parallel to each other,—the first being 1 millometre wide, the second 2 millometres, the third 4, the fourth 8, the fifth 16, the sixth 32, and the seventh 64 millometres. The photographic surface is placed at nearly the bottom of the inclined plane, under a metallic plate pierced with seven circular holes corresponding with the openings of the moveable plate containing the proportionate apertures. When the moveable plate passes before the photogenic surface covered with the seven circular holes, the light strikes upon the spaces left open by the circular holes in various intensities. The space lighted by the opening of 64 millometres will be affected by an intensity double that which is lighted by 32 millometres, quadruple that of the next under the opening of 16, and so on until the last opening, which, being only 1 millometre, will have received 64 times less light than the first; so that after the operation, seven round figures, or less, according to the intensity of light, are represented on the photographic plate. The photographer is thus enabled to ascertain how long it will be necessary to submit the plate to the action of the light on the camera, by the length of time required to develop the seven round figures.

DRAIN BRICKS AND THE DUTY.

An application for a new trial, in the case "The Attorney-General *v.* Walker," on the ground of misdirection on the part of the Chief Baron, having been made, wherein the question is, whether bricks marked "Drain," and exempted by 2nd & 3rd of Victoria, cap. 24, sect. 18, from duty, might be used in *bridges over drains?* the judges in the Court of Exchequer have given their opinion and pronounced for a new trial. Mr. Baron Rolfe thought that no bricks were exempt which were not immediately necessary for the drainage, and that it was not enough that the necessity for the works should arise collaterally from those authorised or required for the purpose of draining land. Necessary works must be taken to mean "physically necessary," and such as were reasonably used with reference to the physical necessity. If the bridges and parapets were not necessary to the drain, the bricks used ought to pay duty; and it did seem that these works, though convenient and desirable, did not fall within the exemption as physically necessary.—Mr. Baron Alderson said it was clear that these bridges did not assist the drainage; on the contrary, they might impede the water in times of flood, and it was difficult to see how such works could be necessary to the drain.—Mr. Baron Parke was of the same opinion.—Sir F. Pollock, Chief Baron, was sorry to differ from the rest of the Court. His opinion was, that bricks were exempt from duty which were used on works either legally or physically necessary for the purpose of drainage. "Necessary" meant "reasonably" necessary, in his view of the Act. If a large open drain were to be made, it would be legally necessary that it should be walled in for the protection of the public, or arched over, and the arch or wall would be essential to the drain. It was the wish of the Legislature to confine the exemption to *bond fide* works executed for drainage, and to exclude all which were merely collateral, and were not physically and legally necessary by reason of some legal obligations which entailed their construction on the architect in connection with the drainage. Here the works are executed under a public Act by commissioners. The object of the Act 2nd & 3rd Victoria was to encourage such works, and its provisions ought to receive a liberal construction; and he could not think that the Legislature meant to confine its operations to works which were merely physically necessary, and to exclude those which were legally necessary, but that it was to be extended to such works as bridges and parapets as well as to the mere watercourse of the drain under them.

Edinburgh School of Design.—The competition drawings, &c., at the school under charge of the Board of Manufactures, were exhibited on Friday week, in the galleries of the Royal Institution, and the prizes awarded by the Duke of Buccleuch. A marked improvement is said to have been displayed in the various branches of study.

METROPOLITAN COMMISSION OF SEWERS.

A GENERAL court was held on Thursday, 1st inst., at the Sewers Court, Greek-street, Soho-square. Lord Ebrington, M.P., in the chair.

The Metropolitan Sewage Manure Company.—In answer to an application made by Dr. Guy, and a deputation, on behalf of the Metropolitan Sewage Manure Company, a resolution was passed to the effect that, as soon as arrangements were completed, the company would be permitted to take the sewage water from the Counters Creek sewer for agricultural purposes, for a certain specific time.

A recommendation was received from the general committee, that it would be desirable to continue Mr. Roe as the consulting surveyor of this commission, at a salary of 200*l.* per annum, such amount at the end of the first year to be further considered. Mr. Hale was also appointed assistant surveyor at a salary of 200*l.*

Regulation of Business of the Commission.—A paper of suggestions, drawn up by Mr. Chadwick and Mr. Bullar, for the regulation of the business of the Consolidated Commission, was laid before the court, but no decision upon it was come to. Among the matters of most immediately pressing importance, the following works are recommended:—

1. The scale and details of the survey map.
2. Street cleansing.
3. The manufacture of pipes, and provision of materials.
4. The house drainage report and plan.
5. The Westminster general drainage reports and plans.
6. The land drainage report and plans.

Street Cleansing by Hose and Jet.—A report by the assistant surveyor, on the subject of a variety of experiments in street cleansing by the use of hose and jet, set forth that many of the streets and courts in which these experiments were performed, were, before cleansing, in a most filthy and insalubrious condition, the surface coated with mud, and strewn with offal and refuse of the most disgusting nature; in the interstices between the paving, and in the hollows formed by its partial settlement, stagnant fœtid liquids had collected, charging the atmosphere with their offensive exhalations. The calculation made for the Strand is, that the whole of the carriage and footways should be daily cleansed thoroughly for 4¼d. per house per week, including the courts adjacent thereto; and for the borough of Southwark, at 3¼d. per house per week. According to this plan, taking the number of houses in London at 270,000, and the carriage-way to each house at 27.7 square yards, equal to a total of 7,500,000 square yards; assuming this to be a paved surface, the cost of its application daily (carriage-way and foot-way), would be 93,414*l.* per annum; while under the present process of merely sweeping, the cost would be 171,804*l.* per annum.

Miscellanea.

THE ARUNDEL SOCIETY.—Under this title a "Society for promoting the Knowledge of Art," has been established for the publication, to annual subscribers of one guinea, of translations of foreign works, or original essays, illustrating the principles or the history of art, and engravings from important examples of architecture, painting, &c. The prospectus says,—"The machinery which has proved so effective in the cultivation of literature, science, and archæology, has hitherto been employed only to a limited extent in promoting the knowledge of art. The productions, indeed, of ancient Greece and her colonies, their edifices and their sculpture, have been illustrated by the labours of the Dilettanti Society; and recently much light has been thrown upon mediæval architecture through means of the numerous institutions devoted exclusively to its elucidation. But no such body has hitherto attempted the systematic study of the monuments of painting, nor of the various ornamental arts in which the middle ages were so eminently successful; nor has any undertaken the investigation of the theoretic principles common to all branches of art, by which its efforts should ever be guided, and its achievements judged." The council includes some good names, but will need an infusion of working men.

LEAMINGTON CHURCH CLOCK.—A clock has been placed in the tower of the parish church: the dials, 7 feet diameter, of masonry coated with mastic, are painted purple, and have the surface "smalted," as it is termed, that is, strewn with pulverised or fragmentary glass. The figures, 15 inches in height, are gilt.

CALIFORNIA AND THE GOLD DIGGINGS.—We have purposely avoided reference to the gold finders till now, having a natural suspicion that the extraordinary statements on the subject which have been flying over the country, were exaggerations that succeeding accounts would correct. Nothing, however, has yet occurred to confirm the misgiving, and we must be contented to believe and wonder. Mr. Wyld has published a map of the gold regions, and some "Geographical and Mineralogical Notes" to accompany it. Baily, Brothers, have issued all the information they could rake together, under the title of "The Gold Regions of California;" and now even so staid and steady a writer as Professor Ansted is carried off by the prevailing current, and has published "The Gold Seeker's Manual,"* which even those who do not propose to give up kid gloves and take in "washing" at California may peruse with advantage. Mr. Ansted does not think that the quantity of the precious metals will be sufficiently great to alter permanently their value.—A stimulus will be given to industry, new markets will be opened, and, unless we are deceived, England will be more benefitted in the long run by this discovery than America. The *Liverpool Albion* says that Messrs. Starkey, requiring a place to store goods in now going to California, arranged to send one out. A contract was consequently made with Messrs. Vernon for one to be built of iron, under the directions of Mr. Grantham, civil engineer. The warehouse is of iron, and the roof is similar to those used at railway stations. The sides and roof are thin, covered with galvanized corrugated iron plates. There are large folding-doors in the centre, and windows in the roof. The order was given on the 5th ult., and the men were fairly at work on the 9th; and on Saturday, the 3rd inst., it was entirely erected and ready to be taken down, having been constructed in the short space of twenty-three working days.

ELASTIC MOULDS.—At the Sheffield School of Design, last week, Mr. Young Mitchell, the master, gave a lecture, illustrated by experiments, on the art of making elastic moulds. These seem to have great advantages over the old plan. The moulds may be made at small cost, and with great rapidity. That which would occupy five or six days in the modelling, may be furnished by this process in half that number of hours. The principal material used for the elastic moulds is glue or gelatine. The best fish glue will answer as well as gelatine, and is much cheaper. The material is dissolved like glue, in a vessel placed over the fire in a pot of hot water, stirring it during the process. To each pound of the gelatine it is necessary to add three quarters of a pint of water and half an ounce of bees' wax. It is ready for use when about the thickness of syrup. The model must be oiled carefully with sweet oil, and the composition must be poured upon it while warm, but not boiling. Having set, it may be taken off the model. When the model is small it should be placed in a shoe or case, which gives facility for shaking the mould well when the plaster is poured in, so as to drive it well into the crevices. The plaster should be fine, and in order that it may harden and set quickly, about half an ounce of alum should be added to each pint of water, used in mixing it. Before using the mould it should be carefully oiled. Great care is required in mixing the plaster, and watching it when in the mould, for if it be allowed to remain long enough to heat, the mould is destroyed.

HINT TO DUNDEE.—Sir: Having remarked, in your valuable periodical, advertisements for designs for a memorial to be erected on the quay of Dundee, to celebrate the landing of her Majesty *there*, I beg to suggest to the respected inhabitants of that flourishing town that it would be much more to their convenience, much more to their health, and much more to their credit, were they, in lieu thereof, to employ their spare cash in draining their town (an operation which is very much required), and erecting certain conveniences in a more decent manner, especially as the amount they propose to spend is but a tithe of what would be required to erect a monument of the magnitude proposed, or of the style which the occasion deserves.—ONE WHO HAS USED HIS OLFACTORIES.

* Van Voorst, Paternoster-row.

RAILWAY JOTTINGS.—A new, and it is thought, improved patent express locomotive engine has recently been manufactured by Messrs. R. Stephenson and Co., and placed on the York, Newcastle, and Berwick Railway. Its driving-wheels are 6 feet 6 inches in diameter. A single stroke covers nearly seven yards in length, and the rate of speed has been found to be nearly a mile a minute.——In the formation of a locomotive, there are 5,416 pieces to be put together and adjusted as accurately as the works of a watch.——A 'pit lad' at Killingworth colliery, ambitious, no doubt, to sustain the renown of that nursery of a Stephenson's genius, has invented an apparatus for working railway breaks and preventing collisions, which the *Gateshead Observer*, who patronises the meritorious object of the inventor in providing for the public safety, describes as a substitute for the screw and lever either on tenders or on carriages. By this apparatus, each carriage being provided with a piece of cord the length of itself, having a hook at one end and a loop at the other, a whole train can be placed at the command of the engine-driver as well as of the guard, and if on the tender, it would also work the break of the engine. Every wheel could thus be locked in a moment if necessary, the apparatus exerting a retarding power six times greater than that of the ordinary break, although costing but a trifle more.——The last annual report of the Railway Mechanics' Institution, at Rugby, states that there are seventy-six members, that the library contains 260 volumes of useful works, besides 100 more to be added, and that twelve lectures are delivered half-yearly, on instructive and mechanical subjects.——The Great Western works, from Slough to Windsor, are in rapid progress.——"There seems a fatality," says the *Railway Record*, "attending the endeavours of the Great Western contractors under Mr. Brunel, to obtain an adjustment of their transactions with the railway companies. Mr. Nixon, in respect of his 'contract' works, and other or 'extra' works, for the Taff Vale Company, many years since, claiming a balance of 9,000*l.*, has just been told by the Court of Chancery, that his remedy is at law, and not in equity; but this decision has been delayed so long, as to deprive him of that *legal* remedy. Mr. M'Intosh's executors, after five years' litigation at law and in equity, have lately resorted to a court of equity to take the accounts of works in respect of which half a million is claimed against the Great Western. Mr. Ranger resorted to the same tribunal, eleven years ago, against the same company, and has not yet learnt where his accounts are to be taken. The London and North-Western sent *their* account with Mr. Burton to an accountant last year; and the result is, that the whole has been adjusted! The Manchester and Southampton sent their engineering accounts with Mr. Freebody to a referee, *not a lawyer*, and the result was equally favourable."

PUBLIC LIBRARIES.—We are glad to see that Mr. Ewart is about to move for a select committee upon the public libraries of Great Britain and Ireland, with the view of securing means for their improvement and extension.

SPLITTING BANK NOTES.—Mr. Editor: Knowing you to be a firm friend to the working class, induces me to trouble you with this statement, that the process of splitting a bank note, or any other piece of paper, is the invention of a person, a print-mounter, who was induced to try the experiment to obtain the engraving from one of the illustrated papers without the letter-press showing through from the other side. The experiment of splitting a note was first tried at the house of Mr. Anderson, the George Tavern, Lambeth-walk (or at least for him): my motive for troubling you with this is, that the world may know that a working man is the originator of the above invention, which is the result of ten years' study.—A WORKING MAN.

A contemporary gives the following mode for splitting paper:—Procure two rollers or cylinders of glass, or amber resin, or metallic amalgam; strongly excite them by the well-known means, so as to produce the attraction of cohesion, and then with pressure pass the paper between the rollers. One half will adhere to the under roller, and the other to the upper roller, and the split will be perfect. Cease the excitation and remove each part.

The City Lands in Lambeth.—Sir: The notice in your paper of 23rd December last has brought down the ire of the officers, who have visited the principal tenant with a distress-warrant for rent only due at Christmas, scarcely asked for, and that before the usual time, as a terror to other complainers about drainage. Here, at Lambeth, is land forming at one time part of the Marsh overflowed by the tide (built on under leases by those who foolishly thought sixty-one years could never arrive), which is covered with property placed on it by others, and yielding to the landlord—the city of London—thousands a-year, and yet they are so narrow-minded as to refuse draining any of the houses into the common sewers at their expense; and those tenants who endeavour to point out to them the propriety and necessity of it are visited with the revengeful spirit above described. It is said the city has been a great obstacle to the salutary measures required for health, and this instance would seem to prove that it is truly said; for here is a case of the direst necessity treated with the meanest harshness, because it is brought under their notice. I inclose my card.—Another Sufferer.

Builders' Foremen's Institution.—In reference to the report of the annual dinder of the Provident Institution for Builders' Foremen, which appeared in your last publication, I beg you will add the following handsome donations:—Mr. Cooper, 2*l.* 2s.; Mr. Stirling, 2*l.* 2s.; Mr. W. Trego, 2*l.* 2s.; Messrs. Luard and Beedham, 2*l.* 2s.; Mr. Lee, 2*l.* 2s.; Mr. Taylor, 2*l.* 2s.; Patent Lava Metallic Company, 2*l.* 2s.; Mr. Husler, 2*l.* 2s.; Mr. Dowell, 2*l.* 2s.; The Chairman, 1*l.* 1s.; Mr. Withall, 1*l.* 1s.; Mr. T. Eden, 1*l.* 1s.; Mr. Edw. Eyre, 1*l.* 1s.; Mr. C. Haynes, 1*l.* 1s.; Mr. Brown, 1*l.* 1s.; Mr. Rose, 1*l.* 1s.; Mr. Manuche, 1*l.* 1s. Several of the donors gave in their names as contributors of one guinea per annum to the provident fund. The stewards are anxious publicly to return their sincere thanks to the numerous donors and friends who responded to their invitation, and beg to assure them they close their labours with a deep sense of gratitude for the honour conferred on them by so respectable and numerous an attendance; and also for the very great assistance contributed to the Provident Fund for the Benefit of Aged and Decayed Builders' Foremen.—W. Allard, Secretary.

Elaborate Silver Vase in the Etruscan Fashion.—A German workman (Antoine Vechte) in the employment of Messrs. Hunt and Roskell, has lately completed an alto-relievo richly wrought or embossed silver vase, the result of three years' labour, and mainly representing, in anatomical and other forms, the destruction of the Titans by Jupiter. The shape is Etruscan, of elegant contour. It is about 32 inches in height, with a cover and two handles, and measures from handle to handle 13½ inches. Round the body of the vase are numerous groups of giants, climbing, falling, &c., while the handle or knob of the cover is in the form of Jupiter Tonans. Every portion of the surface is wrought in different grades of high and low relief. The article was commissioned by the artist's employers, and is on sale for 2,000*l.*

Town Hall for Cork.—A town hall is about to be erected in Cork, but there seems to be some difficulty in finding an appropriate site. A laudable anxiety is manifested in the city that the building should be worthy the age, and well placed.

Decoration of the Queen's Robing Room.—The eighth report of the Commission on the Fine Arts, which has just been published, informs us, that the commission is ready to enter into an agreement with Mr. W. Dyce, R.A., for the decoration of her Majesty's robing-room in the palace at Westminster, with fresco illustrations of the legend of King Arthur. Mr. Dyce undertakes to complete certain stipulated works within a period of six years, for which he is to be remunerated (as proposed) at the rate of 800*l.* a-year.

Plan of Clapham, Surrey.—Messrs. A. and R. Bland, Charlton, Kent, have just now completed an engraved plan of the parish of Clapham, in the county of Surrey, on a large scale.* It shews every house, gives a section, and is altogether a nice thing.

* Published by Batten, Clapham Common.

Proposal for a Statue for Jenny Lind.—A correspondent, "W. Tomlinson," of Norwich, proposes that the inhabitants of that city should testify their gratitude to this lady (not more distinguished by her vocal power than by her benevolence and goodness), by erecting a statue to her, and he offers a subscription of 5*l.* towards it. A proposition at present current in Norwich, to place a picture of Miss Lind in St. Andrew's Hall, he does not think a sufficient return for the immense assistance to the local charities afforded by her. If not a statue, he suggests a commemorative window in the cathedral.

Architectural Exhibition.—The exhibition of architectural works determined on by "The Architectural Association," is fixed to take place in March next, at the gallery of the new Society of Painters in Water Colours, in Pall Mall. The committee will be prepared to receive, during the latter part of the present month, drawings of works contemplated or in progress; designs submitted in competition during the year; studies and delineations of existing buildings and antiquities, and architectural models. The drawings should be either in frames or upon strainers. Considering the elevation of their art, by the diffusion of taste amongst the public, to be no less an object than the direct advantage of the profession, the society have determined to constitute the exhibition *free*, with the exception of Saturdays. We hope they will receive the cordial co-operation of the profession.

Rating of Railway Property.—Endeavours are being made by the principal railway companies to obtain a remission of local taxation; they complain greatly of the present system of assessments. A deputation of the chairmen of some of the companies had an interview lately with the chief Poor-law Commissioners on the subject. According to *Herapath*, the ten principal railways pay, on the average, the following sums per acre per annum for parochial taxes:—London and North-Western, 13*l.* 6s.; Great Western, 9*l.* 16s.; Lancashire and Yorkshire, 14*l.* 10s.; Midland, 7*l.* 6s.; York and North Midland, 5*l.* 14s.; York, Newcastle, and Berwick, 4*l.*; Eastern Counties, 4*l.* 12s.; South-Western, 7*l.* 16s.; Brighton, 10*l.* 14s.; Dover, 14*l.* 6s.

Railway Compensation.—Lancaster and Carlisle Railway.—According to the local paper, a trial took place, January 23, at Carlisle, before a special jury, to assess the value of six acres of land belonging to the Maryport and Carlisle Railway Company (now in the possession of Mr. Hudson), but which were required by the Lancaster and Carlisle Railway Company. Mr. Hudson, on behalf of the Maryport Company, first demanded 100,000*l.*; he then called about a dozen witnesses, who valued it at sums varying from 75,000*l.* to 79,800*l.* The Lancaster and Carlisle Company had previously offered 7,005*l.* for the land. The jury, after two days' investigation, gave a verdict for 7,171*l.* Can this be *correct?* We run no risk of being in error when we answer, no.

Preservation of Timbers.—A contemporary says,—that in taking down, a few years ago, in France, some portion of the ancient chateau of the Roque d'Ondres, it was found that the extremities of the oak girders, lodged in the walls, were perfectly preserved, although these timbers were supposed to have been in their places for upwards of 600 years. The whole of these extremities buried in the walls were completely wrapped round with plates of cork. When demolishing an ancient Benedictine church at Bayonne, it was found that the whole of the fir girders were entirely worm-eaten and rotten, with the exception, however, of the bearings, which, as in the case above mentioned, were also completely wrapped round with plates of cork. These facts deserve to be inquired into.

Pin-holes in Iron.—A correspondent from Sheffield says,—Can any of your scientific correspondents inform me what will prevent metal castings ¼ of an inch thick from the cupola, from being, when ground and got up bright, full of small pin-holes? Pig-metal from nearly all the blast furnaces in the three kingdoms, has been tried and variously mixed, but none appears free from them. If any composition or material can be named to prevent it, it will confer a lasting benefit on iron-founders.

Projected Works.—Advertisements have been issued for tenders, by 26th inst., for building a new grammar school at Lichfield; by 20th, for the repair and restoration of the chancel and chancel aisles of the Collegiate Church of Wimborne Minster, Dorset; by 12th, for the erection of offices and workshops for the Liverpool United Gas Company; by 18th, for the whole works in building a new market-hall and corn-exchange at Lichfield; by same date, for the whole works in building a new savings' bank at Lichfield; by 23rd, for the maintenance of the permanent way of the Chester and Holyhead Railway; by 15th, for the execution of a viaduct in St. Pancras Parish; by 1st March, for the supply of 20 cattle waggons of East-India teak for the Great Northern Railway; by 3rd May, for supplying the Government dock-yards with cast-iron articles for twelve months' certain; and by a date not specified, for a condensing engine of 12 to 16-horse power, and one of 6 to 8-horse power, 30 tons of rails, and 160 feet of 9-inch pumps, at Leeds.

Election of the City Commissioners to the Metropolitan Court of Sewers.—On Thursday a Court of Common Council was held, when the subject of the appointment of four commissioners to the Metropolitan Court of Sewers, to represent the interests of the City of London, was resumed. On behalf of the Court of Aldermen, the names of Alderman Lawrence and Alderman Humphrey were proposed, but the former was elected by a large majority. Various gentlemen being proposed *seriatim* to fill the offices as members of the Court of Common Council, a very decided show of hands was in favour of Mr. Deputy Harrison and Mr. Deputy Peacock, but the Lord Mayor said the show was so nearly equal between Mr. Norris and Mr. H. L. Taylor, that he was unable to state on whom the choice had fallen. A second show was then taken, which his lordship declared to be in favour of Mr. Norris; therefore the new commissioners are Mr. Alderman Lawrence, Mr. Harrison, Mr. Peacock, and Mr. Norris.

Sir Hans Sloane's Monument.—Happening to pass the old Chelsea church, which stands at the end of Cheyne Walk, Chelsea, where rest the remains of Sir Hans Sloane, I stopped to read the inscription on the monument, which occupies a prominent position in the churchyard, close by the roadside; but, alas, it was with difficulty I could do so; the letters are all but obliterated. The monument itself is simple and imposing, and the inscription appeared to be equally so. Would it not be desirable to call attention to its state in your valuable journal, in order that some of the more public-spirited of the inhabitants of that *locale* may be induced to subscribe a few shillings to have the letters re-cut deep into the stone before it is too late to decipher them?—Antiquary.

Durham College Library and Museum.—For architectural or other remains, a room nearly 200 feet long and of suitable breadth and height, is to be added to the library of the dean and chapter, by the appropriation of some of the old conventual apartments adjoining, vacant by the death of Dr. Wellesley, one of the prebends.

TENDERS

For building of a new Wesleyan Chapel, in Jewin-street City, on the site of the present chapel:—

Wilkinson	£2,534
Ward	2,520
Ashby	2,368
Smith	2,298
Lawrence	2,285
Jeffrey	2,167
Wood	2,145
Curtis (accepted)	2,044

For the Exbury Parsonage:—

White, Hythe	£1,302	6	5
Emmett, Southampton	1,185	10	0
Roe, ditto	1,177	0	0
T. Burton, London	1,143	0	0
Wheeler, Cowes	1,140	0	0
Mansill	1,097	0	0
Gover and Son, Winchester	1,092	0	0
Brown, Southton	1,088	0	0

For two houses, Endell-street, St. Giles's. Mr. Harry Oliver, Architect.

I'Anson	£2,319
Piper	2,222
G. Mansfield	2,195
Hayward and Nixon	2,180
Curtis	2,142
Ashby	2,133
Brass and Son	2,098
Locke and Nesham	2,060
Holland (accepted)	2,005

Quantities supplied.

MEETINGS OF SCIENTIFIC BODIES

Held during the ensuing week.

TUESDAY, FEB. 13.—Institution of Civil Engineers, 8 P.M.

WEDNESDAY, 14.—Society of Arts, 8 P.M.; Graphic Society, 8 P.M.

THURSDAY, 15.—Royal Society, 8½ P.M.; Society of Antiquaries, 8 P.M.

SATURDAY, 17.—Institute of Fine Arts, 8 P.M.

TO CORRESPONDENTS.

"*Antiquity.*"—Our correspondent will find in vol. iv. p. 92, some particulars as to Old St. Pancras Church.

"*The City and Surrey Gaols.*"—Several comments on the recent tenders, &c., have been received, and shall have attention.

"*Colouring Card Models.*"—A "Tyro" asks what should be used for colouring card-board architectural models to represent red brick, Caen stone, and slate? The most obvious reply is,—Venetian red for red brick, yellow ochre for Caen stone, and Prussian blue with Indian ink for slates.

Received.—"W. M.," "W. and A. H.," "Constant Reader" (the "Encyclopædia of the Buildings Act" published at THE BUILDER Office), "D." (may be quite satisfied), "W. D.," "O. and Co." (the specimen shall be mentioned), "An Old Subscriber" (we know of no lending library. The library of the Institute is open to members. Mr. C. J. Richardson's works will be found very useful), "E. J. N. S.," "A Guardian" (Birmingham), "C. R. S." (shall be looked to), "Jack-plane," "W. T." (thanks), "T. G." (there is much information on the subject in Hope's "History of Architecture"), "John Coupland" (we have received a letter thus signed, but can only regard it as a hoax), "J. C." (we are not disposed to recommend), "Auld Lang Syne" (we are surprised that our correspondent should discover any "flippant" allusion to (Roman) Catholicism, or an unfavourable comparison with Pope Pius, in the article in question. We simply mentioned a political fact,—a subject of congratulation for one country and regret for another), "F. P." (we do not understand it, and therefore cannot reply), "T. S. (we have a view of the church in preparation), "G.," "Constant Reader," "J. S.," "R. R. J." (out of our province), "J. D." (we are sorry that we cannot advise), "A. S.," "62, Moorgate-street," "F. Le C.," "A. A.," "A Commissioner."—Marshall's "Index Ready Reckoner" (Longman); "School Architecture, or Contributions to the Improvement of School-houses in the United States," by Henry Barnard, 2nd edition (New York, Barnes and Co.); "Elevations, Sections, &c., of Strixton Church, Northamptonshire," by M. E. Barr (J. H. Parker, Oxford and London); Wood's edition of the "Songs of Scotland," Parts 23 and 24, edited by W. and F. Graham (Novello, Dean-street, London), a cheap and excellent work; "Lecture on Colonization," by Mr. W. H. G. Kingston (Trelawney Saunders, Charing Cross).

"*Books, Prices, and Addresses.*"—We have not time to point out books or find addresses.

TO PROVINCIAL READERS.—In reply to complaints of the irregular delivery of THE BUILDER in provincial towns, we beg leave to state that it is invariably published by seven o'clock on Friday morning; and that the irregularity complained of rests entirely with the parties through whom it is obtained.

ADVERTISEMENTS.

CHURCH NEEDLE-WORK.—Aux Gobelins Britanniques, 186, Regent-street. All the patterns for Church Embroidery sanctioned by the Ecclesiological, late Cambridge Camden, Society, on paper, cloth, or velvet, with materials and instructions. Also, the "BOOK of SYMBOLS," second edition, containing twenty-nine plates of Patterns for Church Needle-work, on checked paper ready to the worker's hand, price 10s., or free by post, in exchange for a Post-office order, 10s. 6d. The plates may be had separately at 1s. each. Also, a rich and varied selection of Ecclesiastical Designs, derived from the ancient stained glass and polychromatic decorations of the Cathedrals and Churches of Italy, France, and England.
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SELF-FLUSHING WATER-CLOSETS.—FLEXIBLE DIAPHRAGM VALVE COCKS.—"LAMBERT'S PATENT."—The patentees solicit the attention of architects, engineers, builders, and the trade to these inventions, both of which are very great improvements upon the appliances hitherto in use. The cocks have withstood the test of three years' trial, under severe pressure, with perfect success, and are warranted not to leak, and to be exceedingly durable. The closets also have been well tried, and with equal success; they are made self-acting or otherwise, and are so arranged that when self-acting, but a given quantity of water is used at each action of the seat, the movement of which is scarcely perceptible. No service-box, D trap, cranks, or wires are required, consequently the chief causes of derangement and cost of fixing are removed. They are exceedingly cheap and strong, being made of enamelled iron ware.
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IRON FOUNDRY, 9, Brick-lane, Old-street, St. Luke's.—J. J. JONES having made great additions to his STOCK OF PATTERNS, begs to inform the Trade, that he can now supply them with Plain and Ornamental Iron Columns, Girders, Railings, Gates, Iron Copings, Balconies, Window Guards, Verandahs, Ornamental Staircase Panels, Iron Staircases, Tomb Enclosures, Trellis Panelling, Lamp and other Brackets, Cantilevers, Newel Bars, Water Closet Work, Area Gratings, Fly and other Wheels, Wheel Plates, &c.
BAKER'S OVEN WORK, Forge Backs and Troughs, Rain Water Pipes and Gutters, Sash Weights, Furnace Bars, Stoves, Ranges, &c., always in stock.

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HOT-WATER APPARATUS.—The attention of architects, builders, and others is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, staircases, conservatories, forcing and greenhouses, manufactories and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.—BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

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JOHN GRICE most respectfully solicits the attention of Architects, Builders, and Carpenters, to his Stock of Black and Bright Stoves, Kitchen Ranges, &c., &c.
Black Registers, from 6d. per in. and upwards.
Bright ditto with Black and Bright Bars, 3l. 10s. and upwards.
Self-acting Kitchen Ranges, with Oven and Back Boiler:—
3 ft., 2l. 8s. 2 ft. 6 in., 2l. 15s.
Elliptic Stoves, with double backs, 3d. per in.
All articles made on the premises and warranted, and delivered free of expense within five miles of London. Bell-hanging in superior style, hung in secret, 8s. per pull.

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Strong Self-acting Kitchen Ranges, with Back Boiler and Oven and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
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4d., 5½d.; 6d., 7d.; 10d., 1s. 3d.; 20d., 1s. 7d.
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Self-acting Ranges, with Circular Oven and Back Boiler, best Wrought Bars and Bright Fittings,
2 ft., £2. 18s. 2 ft. 6, £3. 7s. 4 ft., £3. 15s.
Best Patent Cut Clasp.

4½d.	5d.	7d.	10d.	1s. 2d.	1s. 8d. per 1,000
3d.	4d.	6d.	8d.	10d.	20d.

Best Sheet Floor Brads 12s. per cwt.
Best Town Glue 36s. Do. Scotch, 22s. per cwt.
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6s. 2d.	8s.	9s. 6d.	7s. 6d.	10s.	12s. per gross.
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Lists of Prices had on application at the Warehouse, or by letter pre-paid, inclosing postage stamp.—Warehouse closes at 7 o'clock.

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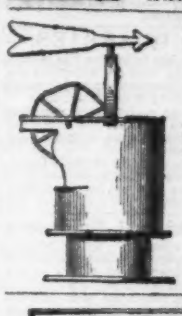

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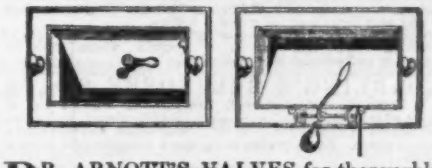

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Plain Iron Valve	7 6	12 0
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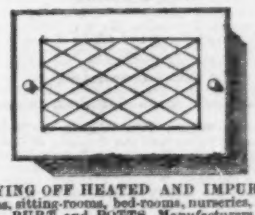

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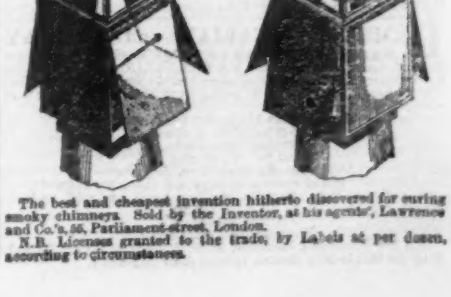

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PAVING, 2s. 9d. PER SQUARE YARD, Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, 15, WHARF-ROAD, CITY-ROAD.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

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ANSTON STONE, used for Building the New Houses of Parliament.—W. WRIGHT and Co. beg to inform Architects, Engineers, Builders, and others, the Anston Stone can be supplied in any quantity on the shortest notice. This valuable stone, so celebrated for its durability, colour, and texture, is well known, having been selected in preference to all others, by the Commissioners of Woods and Forests, for building the New Houses of Parliament. It is very superior for Monuments, Tombs, &c. &c.

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Aubigny resembles Portland in colour and texture, but free from shell, flint, and other obstructions in working. Its durability may be known from its appropriation to lighthouses, dock and quay walling, and the Royal Chateau, Normandy.

L. B. and Co., have a large and seasoned stock at their Depot, Caen Sufferance Wharf, Rotherhithe, near the Lavender Dock Pier.—Orders executed with dispatch to any part of the United Kingdom.

CAEN STONE.—Original Sufferance Depôt, Norway Wharf, Greenwich.—W. TUCKWELL, Caen Stone Quarry Proprietor and Importer, begs to invite the attention of Architects, Surveyors, Builders, and others to the Stock of DRY SEASONED CAEN STONE on his Wharf, comprising 20,000 feet cube, which has been selected with judicious care, and is fit for immediate use. Shipments made to any port direct from his quarries at Caen.

N.B. Orders received at the wharf as above; also at the offices of Mr. R. A. WITHALL, Surveyor, 80, Cheapside, where further information and samples may be obtained.

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELCH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Pimlico, begs to inform ARCHITECTS and the PUBLIC that he has availed himself of improvements in his MACHINERY, by means of which he is enabled to produce GOTHIC WINDOWS, MOULDINGS, PANNELS, &c. &c., at a very cheap rate, out of a superior stone from the west of England, as durable as any soft stone, and particularly sound.

S. C. has an economical method of dressing the above stone over, which produces, by the action of the atmosphere, a surface of crystalline hardness, and improves the colour.

FONTS from 5l. upwards. Specimens on view of the various styles.

First-rate ARTISTS retained for SCULPTURED and CARVED Works.

Vein Marble Chimney-pieces, of the best quality of material and workmanship, by improved machinery 40s.
Stone ditto, from ..... 8s.

A variety on view in stock.

MEMORIAL CROSSES, MONUMENTS, TOMBS, HEADSTONES, &c., in great variety of design.

RESTORATION of CHURCHES. SAMUEL CUNDY having had much practice in this branch, is desirous of Estimating for Restorations.

CLERKS of WORKS have their particular attention called to the above establishment. Coats of Arms, Decorated Pannels, and other enriched works, promptly executed.

Every description of Stone or Granite work prepared, ready for fixing.—Delivered at the various Railways, and carefully packed in trucks.—Pimlico Marble and Stone Works, Belgrave Wharf, Pimlico

ENAMELLED SLATE.—CAUTION!— Some discarded workmen of Mr. Magnus's, having pirated his invention of marbling slate, and palmed upon the public trashy imitations, which unfortunately are frequently confounded with MAGNUS'S ENAMELLED SLATE, until a few months' wear has shown them in their true light, Mr. MAGNUS, who has expended a fortune in perfecting and introducing his enamelled slate articles (which articles have won for him the patronage of the highest personages in the realm, the approbation and support of the first architects, and the medal of the Royal Society of Arts), deems it incumbent upon him for his own protection, and that of the public, and for the just fame of his invention, to caution the inexperienced against these imitations. The public are, therefore, requested to observe that the address is MAGNUS, PIMLICO SLATE WORKS, and in future all articles of his manufacture will be so marked.

Patronised by her Majesty Prince Albert, the Duke of Wellington, the Duchess of Sutherland, the Duchess of Grafton, the Marquis of Westminster, the Marquis of Londonderry, the Earl of Denbigh, the Earl of Dartmouth, the Earl of Bandon, the Earl of Waldgrave, the Countess Wilton, Viscount Combermere, Lord Robert Grosvenor, the Bishop of London, the Bishop of Bath and Wells, the Hon. Col. Douglass Pennant, Mr. Assheton Smith, Col. Challoner, Sir J. Easthope, Sir Francis Lawley, Sir Ralph Howard, the Hon. Capt. Duncombe, Sir W. Gordon, the Hon. C. Shaw Lefevre, and numerous others of the nobility and gentry of this and other countries; by the most eminent architects and surveyors, the engineers and directors of the principal lines of railway, the Board of Public Works, and by the public generally.

SLATE SLABS.—Mr. MAGNUS having machinery in Wales capable of sawing and planing some thousands of tons annually, is enabled to supply the public at a much lower rate than any other house not possessing the same facilities. Parties ordering large quantities will be allowed a considerable discount off the recently reduced price list.—Address, MAGNUS, Pimlico Slate Works.

REMOVAL.—ITALIAN and GALWAY MARBLE QUARRIES DEPOT, Whitehall Wharf, Parliament street, Westminster.—Mr. FRANKLIN, Proprietor of the above Quarries, informs the Sculptors, Marble Masons, Builders, &c., that he has REMOVED his Depôt from Pimlico to the above address.

Arrived from his Quarry at Galway:—
3,000 feet of Black Slabs.
700 feet Cube Blocks.
8,000 feet of Flagging.

At Bristol—*Ex. Mary Ann*, Leghorn:—
1,300 cubic feet of various Marbles in first quality statuary, Veined Dove, Bardilia, Sicilian, black and gold, and Sienna.

From Galway:—
Black, in Blocks and Slabs.

It is Mr. Franklin's intention to be at Redcliff Wharf, Bristol, from the 12th to 20th instant, to meet these shipments.

TERRA-COTTA, or VITRIFIED STONE WORKS, King Edward-street, Westminster-road, London.—M. H. BLANCHARD, from late Coade's Original Works, Belvedere-road, Lambeth, begs to inform the Nobility, Gentry, Architects, and Builders, that he has re-established the manufacture of that invaluable material, which has been successfully adopted by our eminent Architects and others, in the adornment of our noblest buildings, nearly 100 years has proved the imperishable nature of the material, the specimens of those times now exhibiting all their primitive sharpness.

Groups, statues, friezes, capitals, panelling, pinnacles, finials, terminals, Tudor, and other chimney shafts, balustrading, fountains, fonts, tazzas, vases, coats of arms, devises, and every description of architectural ornament, at prices in many instances nearly half the cost of stone.

Specimens of the material to be seen at the Office of "The Builder," 2, York-street, Covent Garden, and at the Works.

TO THE BUILDING PUBLIC.

FIRST-RATE ORNAMENTS in PORTLAND, ROMAN and other CEMENTS, and PLASTER of PARIS, at reasonable prices, consisting of Vases, Balusters, Capitals, perforated Panellings, Cantilevers, Brackets, Trusses, Wreaths, Scrolls, Masques, Heads, Figures, Friezes, Gothic and other Chimney-Shafts, Soffits, Bed-moulds, Paterae, &c., &c., 36-inch Centre, Flowers fixed complete, 24s. each, smaller in proportion An assortment of Shop-front Trusses always ready for fixing.—HERBERT and SON, Modellers, &c., 42, Parker-st., Drury-lane.

TODD'S PATENT METALLIC PROTOXIDE PAINT, for Stucco Fronts, Brickwork, Iron, Wood, and every description of Painting. This Paint has been most severely tested for nearly four years, by men of great experience, and has been extensively used under the superintendence of Architects, Engineers, and Surveyors of the greatest eminence.—Orders to be addressed to Mr. B. TODD, Patentee, 23, Dean-street Soho, London.

ROMAN CEMENT, made according to the specification of Parker's Patent, may be had genuine of J. M. BLASHFIELD (late Wyatt, Parker, and Co.), Waterloo Dock Wharf, Commercial-road, Lambeth. No. 1, Ironsgate Wharf, Paddington, and at the Manufactory, Mill Wall, Poplar. Also Plaster, Mastic, Tarras, Bricks, Tiles, &c.

PARIAN CEMENT, for internal Stucco, instead of PLASTER OF PARIS, may be painted and papered within twenty hours of its application on the bare walls; and rooms may be rendered habitable by its use before the materials commonly adopted would begin to dry. It is worked without the slightest difficulty. A finer quality is also prepared for ornamental plastering, for encaustic painting, &c. &c. Specimens of which may be seen at the Manufactory of the Patentees, CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

KEENE'S PATENT MARBLE CEMENT forms an exceedingly hard and indestructible Stucco, which may either be prepared for paint, or finished in imitation of stone, by the addition of Portland or other stone dust.

It is a cheap and efficient substitute in place of wood for skirting, architrave, and other mouldings, in its application for which purposes it checks the progress of Fire and the attacks of Vermin.

Patentees and sole Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT, as manufactured by J. B. WHITE and SONS, possesses all the properties of the best Roman Cement, but has the advantage over that material of wholly resisting frost; and when used as a stucco it does not vegetate or turn green in damp situations, and requires no colouring. Employed as an hydraulic mortar for brickwork, it carries four to five measures of sand to one of cement, and is proved by trial to become harder and stronger in these proportions than Roman Cement with but one measure of sand. This superior connecting power, combined with its eminently hydraulic properties, point it out as the fittest material for building sea and embankment walls, the lining of reservoirs, cisterns, and baths, and for all those purposes where strength and a perfect resistance to water are required.

Manufacturers—J. B. WHITE and SON, Millbank-street, Westminster, and 36, Seel-street, Liverpool.

PORTLAND CEMENT, solely MANUFACTURED by WILLIAM ASPDIN, Son of the Patentee.—Messrs. ROBINS, ASPDIN, and Co. request reference to No. 286, page 491; and also Nos. 284 and 285, pages 343 and 351 of "The Builder," for accounts of EXPERIMENTS on the strength of Portland Cements, whereby the great superiority of their Cement is manifest. This Cement has been proved for upwards of twenty years in the Thames Tunnel to resist the action of water; it is stronger in its cementitious qualities, harder, and more durable than any other description of Cement; it does not vegetate, or vdate, or turn green; nor is it affected by any atmospheric influence whatever the climate, resisting alike the action of frost and heat. It is manufactured to set in from five to sixty minutes. For all purposes that Cement is applicable the Proprietors challenge competition.—Orders received by Messrs. ROBINS, ASPDIN, and Company, at their Manufactory, Northfleet, Kent, and their Wharf, Great Scotland-yard, Whitehall; also by their Agent at the Depôt, 1, Back Goree, Liverpool.

JOHNS and CO.'S PATENT STUCCO CEMENT and PAINT.—The attention of Architects, Builders, Plasterers, Painters, Merchants, and the Public generally is solicited to the many advantages attached to these celebrated Materials, which, for their appearance, durability, imperviousness, utter resistance to frost or heat, and general economy, distinguish them from all other cements and paints, and fully justify the confidence reposed in them, as shewn by the numerous testimonials received from public bodies and private individuals of the first importance.—Pro-pectuses and particulars may be obtained from the sole agent, PHILIP HARE, at the Warehouse, 22, Steel-yard, Upper Thames-street.

MARTIN'S PATENT FIRE-PROOF and ORNAMENTAL CEMENT—REDUCTION of PRICE.—The Patentees beg to inform their Friends and the Public that they have made arrangements which enable them to offer this invaluable cement at a considerably reduced price. It has now been before the public so many years, and has obtained so high a standing in the estimation of all who have used it, that it is unnecessary to comment on its merits. The Patentees, however, feel called upon to observe, that by its use—from the greater amount of surface which a given quantity will cover, and the small amount of labour required in working it, a saving of 25 to 30 per cent. is effected as compared with other cements for internal use. Specimens shewing its beauty, hardness, and applicability to all plain and ornamental purposes, may be seen; and the Cement in any quantity obtained of the Patentees, Messrs. STEVENS and SON, at their Plaster and Cement Works, 186, Drury-lane, London.

WARWICKSHIRE CEMENT.—To Architects, Engineers, Contractors, and Builders.—R. GREAVES solicits the notice of the Profession and Trade to the very superior CEMENT he is now manufacturing at his Works, Stratford-on-Avon and Southam; the "Warwickshire" resembling "Caen" stone, and the "Improved" a dark tint of the "Bath," both of which will be found unequalled, especially for hydraulic purposes.

GROUND LIAS LIME FOR CONCRETE, &c.

N.B. Glazed Stone-Ware Pipes on sale.

Agents for London—Rutty and Verey, 2, South Wharf, Paddington; Manchester—J. Thompson, Back King-street; Liverpool—T. Wylie, 56, Gloucester-street; Belfast—W. and F. Lewis; Glasgow—W. Brown, 164, Broomielaw; Oxford—E. Cryer, Canal Wharf; Chester—J. Harrison, Linenhall-street; Worcester—F. Bradley, Butts; Evesham—H. Burlingham and Co.; Birmingham—J. Burchill, Berkley-street.

TO BUILDERS AND OTHERS.

RAIN-WATER PIPES, heads, shoes, and elbows, half-round and O G gutters, sash weights, railing bars, sink and stable traps and gratings, air bricks, close and open coal plates, scrapers, tile lights, balcony panels, barrow wheels, &c.

GAS and WATER-PIPES, bends, branches, Tee pieces, syphons, and lamp columns; also hot-water pipes for heating buildings and hot-houses, and FLANGE PIPES, with all the usual connexions. A large stock of the above CASTINGS at very low prices, at JONES'S, Iron Bridge Wharf, No. 6, Bankside, Southwark.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP., and borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms.—CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

PATENT PLATE GLASS.—HETLEY and CO. beg to inform Architects, Builders, and the Trade generally, that their new Tariff of PRICES for the above is now ready, and will be forwarded on application. A REDUCTION of about 40 per cent. has been made on the usual Glazing sizes.—Sheet, Crown, and Ornamental Window-Glass Warehouse, 35, Soho-square, London.—ROUGH PLATE GLASS.

E. and W. H. JACKSON beg to call the attention of Builders and the trade to the reduced prices of their PATENT PLATE GLASS, which, from its cheapness, is now superseding crown in all respectable dwelling-houses. BRITISH and ROUGH PLATE, CROWN, SHEET, STAINED, and ORNAMENTAL GLASS, supplied of the best manufacture, and at the lowest terms. List of prices, estimates, and every information can be had on application at their warehouse, 315, Oxford-street.

PATENT PLATE GLASS.—CLAUDET and HOUGHTON beg to remind Architects, Builders, and the Trade of the very low price at which they are now selling PATENT PLATE GLASS, the effect of which is to supersede the use of Crown Glass in the principal windows of all the better class of dwelling-houses.—PLATE, SHEET, CROWN, COLOURED, and ORNAMENTAL WINDOW GLASS Warehouse, 89, High Holborn. Lists of the reduced prices forwarded free on application.

PAINTED and STAINED GLASS and ORNAMENTAL GLASS of every kind, for Windows.—CLAUDET and HOUGHTON, 89, High Holborn, execute every description of Ornamental Glass for Windows, in ancient or modern style, at the lowest prices consistent with superior workmanship, either in plain colour, ornamental in white, embossed, engraved, or richly painted.—Patterns and specimens may be seen at their Warehouse, 89, High Holborn.

THE UNION PLATE GLASS COMPANY beg to call the attention of architects, surveyors, builders, large consumers, and the trade generally, to the quality, colour, and substance of their highly-finished glass, and as the discounts vary according to size, they prefer giving a special estimate for each quantity required. To encourage the use of Plate Glass for glazing purposes, the price is considerably reduced, which will, for its durability and appearance, insure the preference to any other description.

ROUGH PLATE GLASS supplied for skylights, warehouses, workshops, and flooring, 3-8ths, ½, ⅝, and 1 inch thick.

London Warehouse, 99, Hatton-garden, Holborn.
H. CHRISTIE, Agent.

WINDOW GLASS. — THOMAS MILLINGTON solicits an inspection of the different GLASSES he has now in stock, the qualities of which will be found to be very superior.—87, Bishopsgate-street, Without.

NEW TARIFF.—Sheet in various large dimensions delivered free in London.

Common in 100 feet cases			20s. 0d.
Do.	200	do.	38s. 0d.
Thirds	200	do.	42s. 6d.
Seconds	200	do.	66s. 8d.
Best (very superior)	do.		100s. 0d.

ROUGH PLATE GLASS for WINDOWS, SKYLIGHTS, and FLOORS in sizes not exceeding 5 feet superficial.

¼ thick	1s. 0d.	⅝ inch	2s. 0d.
3-8th inch	1s. 2d.	1 inch	3s. 0d. per foot.
½ inch	1s. 6d.		

PATENT ROUGH PLATE TILES.

¼ thick	0s. 11d.	3-8th inch	1s. 7d.
½ inch	1s. 3d.	⅝ inch	2s. 0d. each.

GLASS DOMES for SKYLIGHTS, from 15 to 50 inches in diameter. These are well worth notice.

C C C Crown per crate 18 tables			£1 16 0
C C	do.	do.	2 0 0
Fourths	do.	do.	2 7 0
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Large Crown Squares in 100 feet boxes ..... 2½d. per foot.
8 by 6 — 10 by 8 do ..... 2d. do.
Very superior Plate for Pictures and Windows, averaging 26s. from 1s. 6d. per foot upwards.

CHAS. WM. WATERLOW, MANUFACTURER

of Sashes and Frames, and Joiner to the Trade, 121, Bunhill-row, Finsbury-square.—Well-seasoned materials, superior workmanship, lowest prices.—Upwards of 400 DOORS, and a large variety of Sashes and Frames, always on sale. Glazed goods securely packed for the country. Steam-struck Mouldings in any quantity.—N.B. This Establishment is worth the notice of all engaged in building.

SASHES and FRAMES, DOORS, &c. &c., No. 11, Commercial-place, City-road, Finsbury-square.—H. WARLAND wishes to inform the building public, that he can supply them with sashes and frames, doors, &c., made with the best materials and workmanship, at the following low prices:—

	At per foot super.
1¼ inch Ovolo sashes and frames	8½d. to 9½d.
2 inch do. do.	10d. to 11d.
1¼ inch and 2 inch do. sashes	3½d. and 4½d.
2 inch four-panel doors, moulded both sides	12d. to 12½d.
1¼ inch do. do.	9d. to 9½d.

And every other description of sashes, doors, and joiner's work in general, at equally low rates.

A. W. only asks for an inspection of his goods to ensure him patronage. A full list of prices sent on application.

By Her Majesty's Royal Letters Patent.

PITT'S PATENT SELF-ADJUSTING DOOR KNOBS AND LOOSE SPINDLES.

HART and SONS beg to invite the attention of architects, builders, and others, to their Door Furniture, mounted for PITT'S PATENTED SPINDLES. The knobs are stronger, more durable, and more elegant in form, than those in ordinary use, as the spindles, being loose, do not require the objectionable side screw. They are more readily fixed, are suitable for every description of lock now in use, and, as they adjust themselves to doors of different thicknesses, without alteration, are particularly adapted for the country or for exportation. They are made to suit every style of decoration in China, crystal, amber, and opal glass, buffalo, horn, ivory, ebony, brass, &c., en suite with finger-plates, bell-pulls, levers, &c.—May be obtained of all Ironmongers; or of the proprietors and sole manufacturers, HART and SONS, Wholesale Ironmongers, 53, 54, and 55, Wych-street, Strand, London.

N.B. PITT'S PATENTED SPINDLE, being the only one that does not require a screw in the side of the knob or mounting, the use of any lock furniture without such side screws would be an infringement of the patent.